A.R.M. LOXAHATCHEE NATIONAL WILDLIFE REFUGE

ENHANCED WATER QUALITY PROGRAM

9TH ANNUAL REPORT
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ACRONYMS AND ABBREVIATIONS

ACME Special Drainage District, Village of Wellington
acre-ft acre-feet (volume reported as one acre in area by one foot in depth)
cfs cubic feet per second
Cl chloride
cm centimeter
DBHYDRO SFWMD's web portal for water quality data
DCS depth from water surface to consolidated substrate
DOI US Department of Interior
EVPA Federal Consent Decree compliance sampling network for Refuge
ft feet
FWM flow-weighted mean
km kilometer
L liter
LOXA Refuge's expanded water quality monitoring network
m meter
mg milligram
NGVD National Geodetic Vertical Datum
NO_x total concentration as nitrogen of oxides of nitrogen, $NO_2 + NO_3$
Refuge A.R.M. Loxahatchee National Wildlife Refuge
s second
SFWMD South Florida Water Management District
SO_4 sulfate
STA Stormwater Treatment Area
Tdepth depth of clear water column
TN total nitrogen
TP total phosphorus
µg microgram
µS cm^{-1} microSiemens per centimeter (measure of conductivity)
USACE U.S. Army Corps of Engineers
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey
WCA Water Conservation Area

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EXECUTIVE SUMMARY

Congress appropriated funds to the U.S. Fish and Wildlife Service in 2004 which funded an enhanced water quality monitoring network and hydrodynamic and water quality models to improve the scientific understanding of water quality in the Arthur R. Marshall Loxahatchee National Wildlife Refuge[1] (Refuge). The network and models provide information that is used in management decisions to better protect Refuge resources. The enhanced water quality monitoring network complements the compliance network monitored as a part of the 1992 Federal Consent Decree (Case No. 88-1886-CIV-MORENO) by characterizing the water quality of a larger Refuge area, particularly the fringe area potentially impacted by canal water intrusions. Monthly grab samples have been collected at 37 to 39 stations located in the marsh and canal since June 2004. The number of grab sample stations has reduced to 37 in recent years because two stations located near the canal were overrun with cattail making them inaccessible. Additionally, continuous measurements of conductivity have been collected along seven transects, four of which extend from surface water discharge points in the canal into the interior. This report is the ninth annual report, with analyses focused on January through December 2012, and with comparisons made to the preceding years (2004 through 2011).

Water quality data and analyses of canal water intrusion into the Refuge marsh presented in this report document continued intrusion of rim canal water into the Refuge interior, adding to a growing information base about canal water impacts to the Refuge. Intrusion of nutrient-rich and high conductivity water from the canal network surrounding the Refuge has been shown to negatively impact Refuge flora and fauna. Important insights gained from 2012 canal water intrusion analyses include:

- Canal water intruded into the marsh up to 4 km depending on timing and location.
- Rainfall total in 2012 for the Refuge and contributing basins was higher than the historic average (1963 through 2011) and this year represents the highest level of rainfall since 2004.
- Intrusion of canal water into the marsh was greatest from late April to early May 2012 and appears to be related to rainfall increasing water depths and resuspending settled water quality constituents. Phosphorus concentrations in STA discharges declined over the period from January through July 2012, while marsh Perimeter phosphorus concentrations peaked to above 10 ppb in May 2012 consistent with the increase in distance of identified canal water intrusion. Similar to the increase in intrusion during late April and early May 2012, the increase in phosphorus concentrations during this period is likely linked to rainfall increasing water depth and resuspending settled phosphorus.
- An excursion of the phosphorus long-term limit occurred in October 2012, following a peak in canal water intrusion (2.2 km) in September 2012. This intrusion event followed

[1] Public Law 108-108; see House Report No. 108-195, p. 39-41 (2004)

a spike in in inflows (> 9,000 cfs) to the Refuge. The inflow peak was in response to Tropical Storm Isaac, which over two days released more than 8 inches of rain on the Refuge, and more than 15 inches in basins north of the Refuge. Prior to this event, canal stages were lower than marsh stages, but following the rainfall and resulting inflows, the canal stage rapidally increased to match marsh stage.

Analyses of these data continue to support previously suggested management practices that have the potential to minimize intrusion. While reducing intrusion would not have alleviated the April-May 2012 event, which is a response to legacy loads of nutrients and minerals, reducing intrusion and reducing nutrients and minerals in water delivered to the Refuge are major means of reducing the impact of resuspension following marsh dry-outs. This year, the Refuge attempted to achieve the high stage performance measure which calls for water stage above 17 ft for 3 to 4 weeks in 4 of 5 years. The performance measure is designed to provide ecological conditions that promote replenishment of the fish prey-based populations following drought years and establish hydrologic conditions conducive to promoting water stage recessions that concentrate the fish prey-based population during wading bird fleding season. Regardless of the unique events in 2012, a few recommendations with regards to reducing canal water intrusion are summarized as balancing inflow and outflow volumes, reducing the duration of inflows, and reducing inflow rates when the canal stage is lower than the marsh stage.

Based on the surface water conductivity data, the Refuge was classified into four geographic zones: (1) Canal Zone; (2) Perimeter Zone, located from the canal to 2.5 km (1.6 miles) into the marsh; (3) Transition Zone, located from 2.5 km (1.6 miles) to 4.5 km (2.8 miles) into the marsh; and (4) Interior Zone, greater than 4.5 km (2.8 miles) into the marsh. Overall, water quality conditions in the Perimeter continue to be different from, and more impacted than, the Interior Zone. Cattail expansion in the Refuge marsh, negative impacts to periphyton and *Xyris* spp. in response to nutrient and mineral enrichment, and displacement of sawgrass in the canal water-exposed areas of the marsh are a few examples of marsh impacts.

This report continues to document that water movement between the canals and the marsh is influenced by rainfall, structure-controlled water inflow and outflow into perimeter canals, the difference between canal and marsh stages, and marsh elevation. When combined with our understanding of canal water intrusion's influence on the marsh, these data continue to suggest that high-nutrient water is having a negative impact on the Refuge marsh (e.g., enriched soil TP, displacement of sawgrass by cattails, loss of *Xyris* spp., etc.).

ANNUAL PROGRAM SUMMARY

The objective of this section is to provide a general descriptive summary of environmental conditions, canal water intrusion into the Refuge marsh (movement of water from the perimeter canal into the marsh interior), and associated water quality in the Refuge from January through December 2012 following approaches presented in previous annual reports (USFWS 2007a, b; USFWS 2009; USFWS 2010a, b; USFWS 2012a, b). Further, we compare results, particularly total phosphorus (TP), in 2012 to results presented in previous water quality reports covering the period from January 2004 through December 2012 (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b). Thus, this section serves as an update to the 2011 annual report (USFWS 2012b) and briefly characterizes environmental conditions (e.g., rainfall, canal flows, marsh and canal stages, and water quality) associated with events of canal water intrusion into the marsh and water quality conditions during 2012. This year, we applied our Forageable Habitat Quality Index (FHQI) to identify environmental parameters that strongly influence vegetation community composition.

Background

Prior to June 2004, water quality in the Refuge interior was monitored primarily using the 1992 Federal Consent Decree (Case No. 88-1886-CIV-MORENO) compliance network (EVPA). These 14 stations (**Figure 1**), monitored since 1978, characterize the central region of the interior marsh, leaving a relatively large region uncharacterized, predominantly in the outer, impacted fringe of the wetland (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b). In June 2004, the Refuge initiated an enhanced water quality monitoring network (LOXA) intended to improve the scientific understanding of water movement in and out of the Refuge marsh, water quality in the marsh, and to provide information that can be incorporated into water management decisions to better protect Refuge resources (Brandt et al. 2004). The enhanced monthly sampling focuses on areas near surface water discharge stations in areas uncharacterized by the EVPA network (**Figure 1**).

Water delivered to the Refuge originates as direct rainfall and canal water discharges from the surrounding basins. Stormwater treatment areas (STA) 1W and 1E treat the majority of water delivered to the Refuge via canals. Canal discharges are driven by rainfall in the surrounding basins, with a large volume delivered to the Refuge from the L-8 and S-5A basin (Burns and McDonnell Engineering Co, Inc. 2005). The L-8 basin discharges are generally a mixture of water from Lake Okeechobee and the S-5A and C-51 basins (Gary Goforth, Inc. 2008). The STA-1E water control plan indicates that during this interim period (through 2015), water discharges to tide (east coast – Lake Worth Lagoon) should approach 150,000 acre-ft, while the remainder of the water should be treated and distributed throughout the Everglades Protection Area (Refuge south to Florida Bay). Stormwater Treatment Areas 1W (180,000 acre-ft annually capacity) and 1E (165,000 acre-ft annually capacity) are to treat some of this water (Gary Goforth, Inc. 2008).

Water levels in the Refuge are managed by U.S. Army Corps of Engineers (USACE) based on the 1995 Water Regulation Schedule (USFWS 2000; USFWS 2007a, b; **Figure 2**). Inflows to the Refuge from the STAs or as bypass around the STAs are controlled by the South Florida Water Management District (SFWMD), while discharges from the Refuge are controlled by USACE. Since 2009, staff from the Refuge has held weekly calls with USACE to provide input on timing and volumes of discharges from the Refuge.

Methods

Environmental Conditions. Rainfall, flow, stage, and additional water quality data were downloaded from the South Florida Water Management District (SFWMD) data web portal, DBHYDRO and data were current as of April 20, 2013 (http://my.sfwmd.gov/portal/page?_pageid=2235,4688582&_dad=portal&_schema=PORTAL). All stage data presented in this report are relative to the NGVD 1929 datum. Data from the USGS 1-7 stage gage (**Figure 1**) were used as estimates of marsh stage values; canal stage data from the headwater gage of the G-94C outflow spillway structure (**Figure 1**) were used for continuity with previous reports. These data were also used to assess the number of days the canal and marsh stages were greater than 17 ft in any year, with 21 to 28 days being optimal for providing desired stages going into the dry season for proper recession and adequate water for hatchling foraging. Refuge inflow and outflow were aggregated as the total daily average flow. Inflow records for ACME-1, ACME-2, G-310, G-251, S-362, G-300, and G-301 were used for daily average inflow into the canals; outflow records at G-300, G-301, G-94A, G-94B, G-94C, S-10A, S-10C, S-10D, and S-39 were used for daily average outflow out of the canals (**Figure 1**). Data from G-338 also were considered, but the discharges were sparse and not included in these analyses. Daily rainfall data were averaged from the LOXWS, S-6, S-39, and S-5A weather stations to represent Refuge rainfall (**Figure 1**). Rainfall for the C-51 is represented by S-5A and WPB AIRP, and Pahokee1 and Pahokee2 represent rainfall for the S5A basins. Flows to the east of the Refuge from the S-5A, C-51, and L-8 basins are represented by pump structure S-155A.

Intrusion Monitoring. Conductivity acts as a conservative tracer of canal water; there are no biological or chemical processes in the surface water that significantly alter conductivity. Thus, these data can be used to track canal water intrusion into the marsh, which ultimately can be examined in relationship to water management operations. We determined the spatial and temporal extent of high conductivity canal water intrusion into the Refuge under different hydrologic conditions with emphasis on six of the seven Refuge conductivity transects (**Figure 1**), where temperature-compensated conductivity is collected hourly using conductivity data loggers. Also, we related changes in the extent of intrusion to water management activities affecting canal stages and flows into the Refuge, and determined the influence of natural meteorological events and hydrologic mechanisms on intrusion of high conductivity canal water.

We used the six conductivity transects to track water movement between the canal and the first six kilometers of the marsh (**Figure 1**). Two transects (STA-1E and STA-1W) were established near the outflow of STA-1W and STA-1E discharge structures. Two of the remaining

transects (ACME-2 and Southeast) were established on the east side of the Refuge south of the STA-1E discharge structure. We established the Southeast (SE) transect late in July 2007 to capture canal water intrusion in areas not previously characterized. The final two transects (S-6 and Extreme Southwest) were established on the west side of the Refuge south of the STA-1W discharge structure. The Extreme Southwest (ESW) transect also was established late in July 2007 to capture canal water intrusion signals in areas previously not characterized.

Seventy-five percent of canal monthly conductivity values were greater than 485 $\mu S\ cm^{-1}$ and the maximum was 1,636 $\mu S\ cm^{-1}$. Monthly Interior Zone conductivity levels remained below 254 $\mu S\ cm^{-1}$ through 2012. Given this difference in conductivity between the canal and the interior marsh, we use two conductivity levels, 350 and 500 $\mu S\ cm^{-1}$, to help identify the distance into the interior marsh that canal water penetrated. Tracking was done using isopleths of conductivity generated from the hourly conductivity data. Isopleths are lines connecting points of equal value for a given metric. Elevation contours on a topographic map are examples of isopleths.

The two isopleths (350 and 500 $\mu S\ cm^{-1}$) were chosen to sufficiently cover the conductivity gradient observed from the canal into the marsh. Further, laboratory and field studies have shown that high conductivity waters (>300 $\mu S\ cm^{-1}$) have adverse impacts on the ecosystem community structure (e.g., reduced growth rate of *Xyris* spp. (McCormick and Crawford 2006), shifts from sawgrass to cattail communities (Richardson 2010), altered periphyton community structure (Sklar et al. 2005).

Marsh Total Phosphorus. As in past years, monthly water quality samples were collected from the EVPA and LOXA monitoring networks (**Figure 1**). The EVPA network consists of 14 interior marsh stations collected cooperatively with the SFWMD and Refuge staff. Refuge staff solely-collect water samples from the 37 stations (five in the canal and 32 in the marsh) in the LOXA network. The number of grab sample stations has reduced from 39 to 37 since the program's inception because two stations located near the canal were overrun with cattail, making them inaccessible for water quality sampling. Samples for both networks generally are analyzed for more than 20 water quality parameters. Sample collection is confounded by water depth and sample station accessibility. When clear water depths are between 10 and 20 cm (3.9 and 7.9 inches), only partial samples are collected and analyzed for 6 of the 29 water quality parameters, including: TP, chloride, sulfate, temperature, depth, and specific conductance. When the clear water depths are below 10 cm (3.9 inches), no samples are collected and no data are recorded. This report only presents TP data. **Appendix A** presents summary statistics for all water quality parameters measured in the LOXA network.

Water Quality Zones. The Refuge interior was classified into several geographic zones based upon conductivity data variability and changes in median conductivity as a function of distance from the perimeter canal as presented in USFWS 2007a, b; 2009; 2010a, b, USFWS 2012a, b. For the analyses presented here, the following zones were identified:

- Canal: stations located in the canal
- Perimeter: stations located from the canal to 2.5 km (1.6 miles) into the marsh
- Transition: stations located from 2.5 km to 4.5 km (1.6 to 2.8 miles) into the marsh
- Interior: stations located greater than 4.5 km (2.8 miles) into the marsh

Forageable Habitat Quality Index (FHQI). Vegetation composition in the Everglades has been shown to be impacted by nutrient and mineral loading and hydrologic variability (Gaiser 2009; McCormick et al. 2011). Historically, Refuge hydrology was rainfall-driven and biota developed under low nutrient and mineral condition. Intrusion of nutrient and mineral enriched water into the marsh, continuous flooding in the south, and frequent dryouts in the north have resulted from construction of an extensive canal and levee system that has essentially impounded the remaining Everglades. Changes to the composition of floral communities are a well-known effect of altered hydrology and water quality in the remaining Everglades. However, quantifying the impact of altered vegetation communities on habitat quality has not been previously done in the Refuge. In an effort to assess the impact altered vegetation composition in the Refuge on the quality of habitat used by a focal group of trust species (wading birds, Everglade snail kites), we developed a Forageable Habitat Quality Index (FHQI) by applying a Floristic Quality Assessment Index (FQAI; Mortellaro et al. 2009) developed for south Florida vegetation.

The FQAI, in the context of conserving natural communities, attempts to assess the quality of plant communities with respect to natural, non-impacted areas. To this aim, Mortellaro et al. (2009) developed coefficients of conservatism (CC) for south Florida vegetation species. The application of the coefficients in the index eliminates subjectivity in qualifying species relevance with respect to system impact; provides a standard method for evaluating the floristic conditions of a habitat; and standardizes vegetation species comparisons among areas. Two major factors are involved in developing the coefficients: degree of plant fidelity with respect to habitats and response of plants to disturbance. Coefficients of conservatism values for south Florida flora range from 0 to 10 and fall into five guilds (Table 1). The extremes, 0 and 10, represent highly disturbed or impacted areas and unimpacted natural areas, respectively.

In an effort to link water and habitat quality within the Refuge, we identified two groups of flora using CC values from the FQAI that are indicative of either impacted or natural conditions. Selected species in the Refuge have CCs that range from two to eight. Seven plant species were identified as indicators of impacted or natural areas: *Typha spp*. and *Polygonum spp*. were selected as indicators of impact; *Bacopa caroliniana*, *Eleocharis elongate*, *Eriocaulon compressum*, *Xyris spp*., *Nymphoides aquaticum* were selected as indicators of non-impacted natural areas. Coefficients of conservatism values for indicator species present at each station were combined to develop a station-specific value that is a function of both impacted and nonimpacted indicator species, and referred to as the Forageable Habitat Quality Index (FHQI). Coefficients of conservatism values for those species indicating impact (*Typha* and polygonum) are applied as negative values and species indicative of nonimpacted areas are applied as positive values (Table 2). Forageable habitat is defined as habitat suitable for wading birds, alligator, and prey-species. These habitats are characterized by open-water or emergent

sloughs.

Fifty-two water quality stations were sampled in the wet (May through October) and dry (November through April) seasons of 2009 and 2011. Percent cover data was collected for all vegetation species present in 1 m^2 plots situated at 5 m intervals along a 50 m transect. All transects were located in sloughs/emergent sloughs within 100 m of an established water quality monitoring sites.

To assess the drivers of community compositions, we developed a linear regression model using several independent variables to spatially predict FHQI values. Ground elevation, days since dry over 10 and 5 years, average depth over 365 days leading to the sample events, water quality zones, TP, conductivity, and distance from the canal into the marsh were all input into the original model. Akaike's Information Criteria (AIC) analysis was the statistical method used to determine the subset of variables that best predict the FHQI value. Variance inflation factor (VIF) was calculated for the final model to determine the degree of multi-collinearity among the independent variables. Parameter specific VIF close to one suggest multi-collinearity is of no concern when evaluating the significance of the model. A VIF value of four for any parameter is cause for concern and that parameter should be closely scrutinized. At a VIF value of 10, offending model parameters should be removed from the model.

Results

Environmental Conditions: S-5A and C-51 Basins. The 2012 S-5A (831,180 acre-ft) basin rainfall was the highest since 2004 and C-51 (631,200 acre-ft) basins rainfall was similar to the historic average since 1963 (646,946 acre-ft– **Figure 3a**). The higher than normal rainfall in the S-5A basin was driven by higher than normal rainfall in the wet season S-5A (593,160 acre-ft). Rainfall in the S-5A and C-51 basins is a primary driver of inflows to the Refuge.

Flows through the S-155A structure and inflows to STA-1E operate in concert. Discharges to the east coast via S-155A have a guideline limit of 150,000 acre-ft yr^{-1}. In 2012, the volume of water discharged through S-155A was approximately 187,514 acre-ft, and higher than expected during normal operations. Inflows to STA-1E (**Figure 5a**) and STA-1W (**Figure 5b**) were lower than the their individual treatment targets of 165,000 acre-ft yr^{-1} and 180,000 acre-ft yr^{-1}, respectively (Gary Goforth, Inc. 2008) in 2012, similar to most of the preceding years since 2004. Inflow volumes to STA-1E and STA-1W were substantially lower than maximum treatment capacities of 304,993 and 329,169 acre-ft yr^{-1}, respectively (Germain 2013).

Environmental Conditions and Canal Water Intrusion: Refuge. Rainfall on the Refuge in 2012 was approximately 779,892 acre-ft (**Figure 6a**), with dry and wet season rainfall contributing 33%and 66% of total rainfall (**Figure 6b**). Rainfall on the Refuge was highest of any year since 2004. Refuge canal total annual inflow in 2012 (341,125 acre-ft) was 13% higher than average (298,175 acre-ft) since 2004 (**Figure 6c**). Dry (41,244 acre-ft) and wet (299,880 acre-ft) season inflows in 2012 were the lowest during the period of record from 2004 through 2012. Mean canal and marsh stage in 2012 were higher than most years since 2004 (Table 3).

Daily flow peaked several times throughout the year in 2012 (**Figure 7a and 8a)**. Continuing from December 2011, water stages in the canal and marsh declined through March 2012, when stages began ascending. The stage ascension in the marsh and canal were mostly driven by rainfall with minor (< 200 cfs) pulses of inflow from the STAs. Canal water intrusion into the marsh increased to 4 km during April 2012, but the event more likely reflected resuspension of settled legacy minerals than inflow from the canal as rainfall resulted in a stage increase, particularly along the S6 transect (Figure X). Outflows beginning in late May 2012 and continuing through mid-June 2012 resulted in a drawdown of the canal and reduction in canal water intrusion, but rainfall and inflows allowed marsh stage to continue to increase through August 2012.

Over two days (August 26th and 27th), Tropical Storm Isaac, delivered more than 8 inches of rain to the Refuge and more than 15 inches in basins north of the Refuge. These rainfalls, coupled with an inflow peak of more than 9,000 cfs (22% from STA bypass through G300 and G301), resulted in the canal stage rapidly increasing to marsh stage levels, both rapidly increasing above 17 ft by September 9th, and canal water intrusion up to more than 2.2 km into the marsh. Stage in the canal and marsh tracked one-another and remained relatively high for the remainder of the year with minor recession to 16.78 ft by the end of the year. Because of the rainfall and inflows, the Refuge achieved the high stage performance measure this year. The high stage performance measure requires Refuge stage to increase above 17 ft for 3 to 4 weeks in a year 4 of 5 years. The performance measure was not met last year due to drought conditions. Because of the drought in 2011, the high stages this year are necessary to promote fish prey-based population recovery.

Total Phosphorus and Intrusion Dynamics. Flow-weighted mean TP concentration discharged to the Refuge from STA-1E and STA-1W in 2011 range from 13 to 80 ppb through the year, while canal concentration ranged from 18 to 48 ppb (**Figure 9a**). Canal TP concentrations peaked in June (37 ppb) following the onset of rainfall and peaked again (48 ppb) following inflows from Tropical Storm Isaac. Consistent with Canal TP peaks, Perimeter Zone TP concentrations peaked to 12 and 16 ppb during June and September and ranged 8 to 16 ppb. Total phosphorus concentrations in the Transition and Interior Zones remained below 10 ppb over the entire year (**Figure 9b**). The September inflow event resulted in an excursion of the Consent Decree TP compliance level, most likely because of excessive loading from the STA bypass structures G300 and G301 which delivered 13.1 metric-tons of phosphorus over a few days. Regardless of the October 2012 excursion, two excursion in 12 successive months are required before an exceedance of the level is identified.;

Forageable Habitat Quality Index. Several environmental parameters were successfully applied as predictors of FHQI. Distance from canal, days since dry as a five year average, surface water TP, and specific conductivity were significant parameters in the model to predict FHQI. The most significant parameters being distance from canal and days since dry as a five year average (Table 4). This multiple linear regression model explains 67% of the variability (based on the adjusted r^2) in the FHQI distribution. Independent variables were inversely correlated with the

FHQI with the exception of distance from canal, which shows increasing forageable habitat quality with distance from canal. Results indicate *Typha spp.* and *Polygonum spp.* are found within two kilometers of the canal, while species *Bacopa caroliniana*, *Eleocharis elongate*, *Ericaulon compressum*, *Nymphoiedes aquaticum*, and *Xyris spp.* are located more than three kilometers into the marsh away from the canal. Average depth over 365 days, days since dry over 10 years, elevation, and zone were removed from the model based on the AIC analysis. The VIF analysis suggested that multi-collinearity was of little concern as values for the individual parameters (1.18 to 1.62) were close to 1.

Discussion

Since the initiation of the enhanced water quality monitoring and modeling program, the 2012 environmental conditions for the Refuge and contributing basins represent a year with above average rainfall for the system. These conditions resulted in the Refuge meeting the high stage performance measure target established to promote ecological benefits. The performance measure target must be met at least 3 of 4 years, so meeting the target this year should promote recovery of the fish prey-base for foraging birds in the Refuge. Because the Refuge failed to meet the target in 2011, a drought year, it was necessary for the Refuge to meet the target this year.

Tropical Storm Isaac was a major contributor to rainfall volumes this year and is responsible for rainfall increasing above average annual volumes. While this event was positive for achieving the high stage performance measure target, it also resulted in 13.1 metric-tons of TP discharged directly to the marsh as untreated water through the G300 and G301 discharge structures. The result of this excess TP load was an excursion of the long-term TP level for the Refuge in October 2012 and canal water intrusion into the marsh up to more than 2.2 km into the marsh. Two excursions within 12 consecutive-months results in an exceedance of the long-term level for the Refuge, and an exceedance can require remedial actions. Considering, the Department of Interior and State of Florida have come to agreement on restoration strategies of previous exceedances in the Refuge, it is not likely that further remedial actions will be pursued prior to implementation of the restoration strategies, which are not envisioned to be in place until 2024.

Rehydration during March resulted in substantial intrusion into the marsh along the S6 transect, but this event appears to be less directly linked to canal water intrusion. Instead, decades of mineral loading, particularly along the S6 transect, have resulted in deposits of minerals along the transect. As such, once the marsh dries down and a rainfall event rewets the marsh, it is likely that minerals are resuspended into the water column. This dynamic is likely the driver of the observed distance of canal water signal observed in the marsh along the S6 transect in 2012.

Current findings from the FHQI analysis support findings from McCormick et al. (2011), which show species indicative of impacts, such as *Eleocharis cellulosa*, are generally found at the

perimeter of the marsh near the canal, while species indicative of more natural areas of the marsh, such as *Xyris smalliana*, are found more than three kilometers into the marsh away from the canal. Agreement of current results with previous reports of vegetation dynamics and drivers (MCormick et al., 2011), along with the predictability of the FHQI model, support the utility of the FHQI as a tool for evaluating and monitoring vegetation community composition in the Refuge. This tool provides valuable information that can be applied in the monitoring and assessment components of adaptive management in the Refuge. This tool can also be modified for other areas within the Greater Everglades, such as Water Conservation Area 3.

Previous annual reports for the Refuge (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b) have presented water management suggestions, including dry-down frequencies and minimization of canal water intrusion. Some of those suggestions focused on controlling inflows and outflows to minimize canal water intrusion into the marsh. In the 2005, 2006, 2007, 2008, 2009, 2010, and 2011 annual reports, we suggested that if canal water inflows were necessary, the inflow rate should be below 200 cfs (6 $m^3 s^{-1}$) and for a short duration (< five days). Alternatively, if high inflows were necessary and canal and marsh stages were greater than the marsh sediment elevation, then outflows should be timed to inflows and be greater than inflows. The recommended timing, volume, or duration of outflows with respect to inflows was not extensively observed in 2012, similar years. Failure to apply this guidance in 2012 resulted in substantial intrusion in September and October and ultimately an excursion to the TP long-term compliance level. Based on the results of the FHQI, it is clear that managing canal water intrusion is important, but also achieving desired hydroperiods is necessary to promote desired forageable habitats in the Refuge. Because of findings this and previous years, we continue to support the water management recommendation to reduce canal water intrusion as characterized here and in previous reports (USFWS 2007a, b; USFWS 2009; USFWS 2010a, b; USFWS 2012a, b). Some of these management recommendations include (**Table 5**):

- Refuge inflows should be short duration (≤ 5 days) pulses of < 200 cfs (6 $m^3 s^{-1}$) when absolute canal/marsh stage difference is < 0.2 ft (< 0.1 m) and interior water depths are < 0.5 ft (< 0.2 m).

- Refuge inflow rates can be moderate (200 to 400 cfs; 6 to 11 $m^3 s^{-1}$) for short durations if marsh stage is > 0.6 ft (> 0.2 m) higher than canal stage and waters depths are < 0.3 ft (< 0.1 m).

- If Refuge inflows must be extended beyond short-duration pulses at high volumes and there is nowhere else to send water during these inflows, outflow should occur as soon as possible to moderate the extent of intrusion.

We have presented our recommendations at several forums to water managers and the various agencies responsible for making water management decisions. These forums include direct

communication from Refuge managers, Refuge specific weekly water coordination meeting with the USACE, quarterly regional water coordination meetings, and periodic calls with the Corps of Engineers. The quarterly water coordination meetings focus on water management for the northern portion of the Everglades (from Lake Okeechobee down to Water Conservation Area 2) and consist of multiple agencies (e.g., U.S. Fish and Wildlife Service, National Park Service, Corps of Engineers, Lake Worth Drainage District, Florida Fish and Wildlife Conservation Commission, South Florida Water Management District). Periodic calls with the Corps of Engineers focus on water management under the various water regulation schedules for each of the Water Conservation Areas.

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Table 1. Coefficients of conservatism (CC) for South Florida flora range (Mortellaro et al. 2009).

CC guild value	Criteria
0	obligate to ruderal
1 - 3	varying affinity to ruderal areas
4 - 6	varying affinity to natural areas; 5 indicates it's obligate to natural areas; quality of area is low
7 - 9	varying affinity to high quality natural areas
10	obligate to high quality natural areas

Table 2. Selected species commonly found in the Refuge that fall at the extremes of the coefficient of conservatism values and assigned arithmetic sign.

Species	Sign	CC
Bacopa caroliniana	+	8
Eleocharis elongata	+	8
Eriocaulon compressum	+	8
Xyris sp.	+	8
Nymphoides aquaticum	+	5
Polygonum spp.	-	3.5
Typha spp.	-	2

Table 3. Mean, 25th and 75th percentiles, and number of days marsh (1-7) and canal (G94C) stage are greater than or equal to 17 ft.

	Mean		25th Percntile		75th Percntile		Days >= 17 ft	
Year	1-7 ft	G-94C ft	1-7 ft	G-94C ft	1-7 ft	G-94C ft	1-7 days	G-94C days
2004	16.37	15.51	16.04	14.94	16.68	16.57	21	17
2005	16.30	16.09	16.12	15.71	16.46	16.36	0	0
2006	16.32	16.17	16.08	15.82	16.57	16.58	14	17
2007	16.35	15.83	15.96	14.92	16.81	16.83	53	54
2008	16.68	16.46	16.49	16.21	16.92	16.89	65	62
2009	16.35	16.03	16.16	15.71	16.59	16.54	0	0
2010	16.62	16.39	16.52	16.05	16.71	16.71	0	7
2011	15.83	15.43	15.67	14.63	16.29	16.21	0	0
2012	16.54	16.37	16.23	15.93	16.81	16.81	82	81

Table 4. Multiple linear regression model parameters, parameter relationships, parameter p-values, and parameters eliminated from the model.

Parameter	Relationship (p-value)	Not Included*
Elevation		X
Days since dry: 10 year average		X
Days since dry: 5 year average	– ($p < 0.0001$)	
Average depth over 365 days		X
Distance from canal	+ ($p < 0.0001$)	
Zones (perimeter, transition, interior)		X
Total phosphorus	– ($p < 0.01$)	
Conductivity	– ($p < 0.1$)	

Table 5. Evolution of water management recommendation based on water quality analysis since 2004.

Recommendation
Refuge inflows should be short duration (≤ 5 days) pulses of < 5655 L s^{-1} (< 200 cfs) when absolute canal/marsh stage difference is < 0.1 m (< 0.2 ft) and interior water depths are < 0.2 m (< 0.5 ft).
Refuge inflow rates can be moderate 5655 to 11,310 L s^{-1} (200 to 400 cfs) for short durations if marsh stage is > 0.2 m (> 0.6 ft) higher than canal stage by and waters depths are < 0.1 m (< 0.3 ft).
Refuge inflows should be discontinued when the canal stage is > 0.1 m (> 0.2 ft) higher than marsh stage, unless the rainfall or outflow volumes are 3 to 4-times higher than the inflows.
Refuge inflows should be discontinued when the canal stage is > 0.2 ft (> 0.1 m) higher than marsh stage, unless the rainfall or outflow volumes are equal to or greater than inflows.
If Refuge inflows must be extended beyond short-duration pulses, outflow should be greater than inflow and last several days longer.
If Refuge inflows must be extended beyond short-duration pulses, outflow should be equal to or greater than inflow and last several days longer.
If Refuge inflows must be maintained at high rates, the S-10s and S-39 should be opened to create outflow 3 or 4-times higher than inflow.
If Refuge inflows must be maintained at high rates, the S-10s and S-39 should be opened in conjunction with canal inflows to create outflow equal to higher than inflow.
If Refuge inflows must be extended beyond short-duration pulses at high volumes and there is nowhere to send water during these inflows, outflow should proceed as soon as practicable to moderate the extent of intrusion the marsh receives from the original inflows.

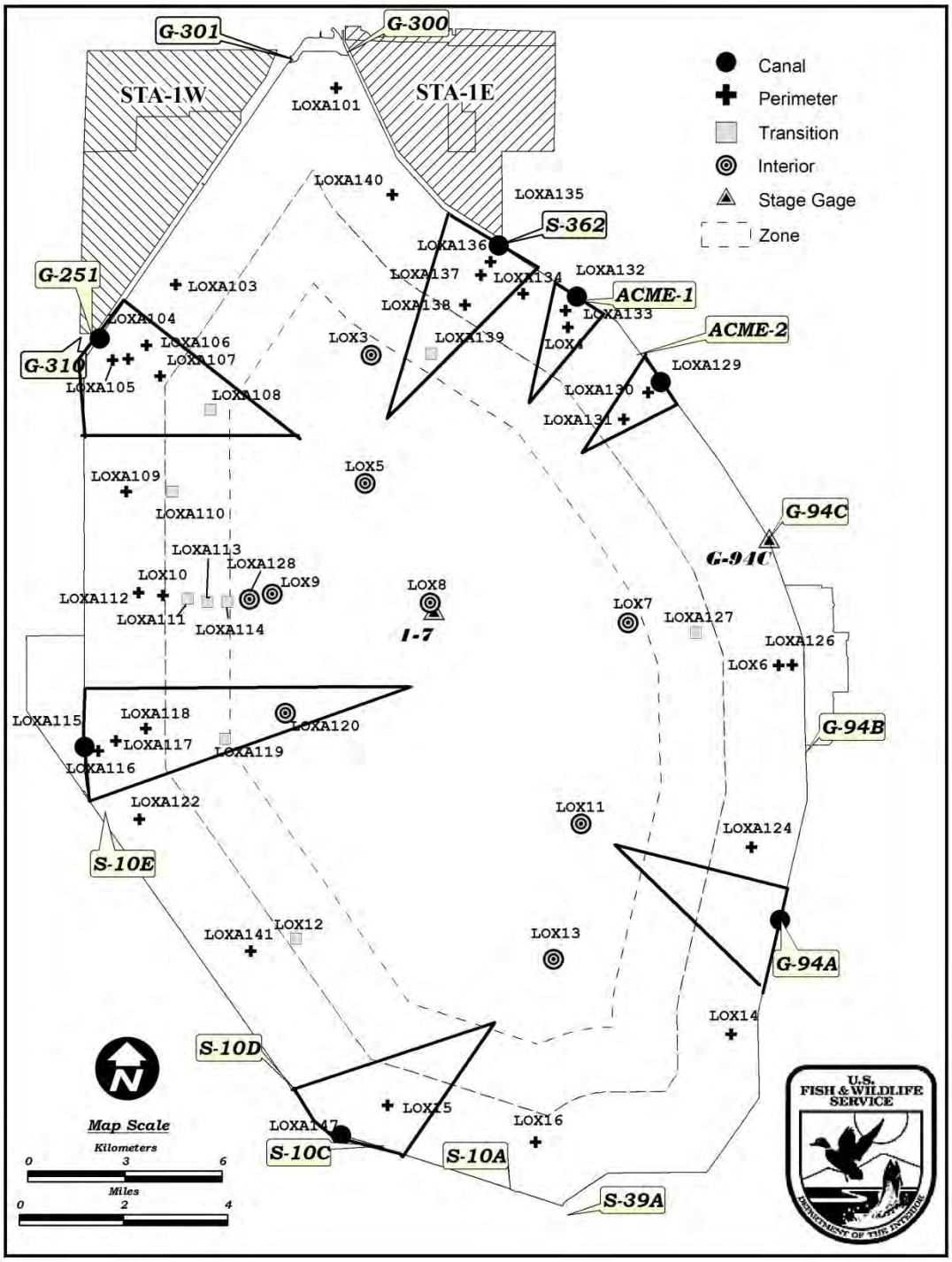
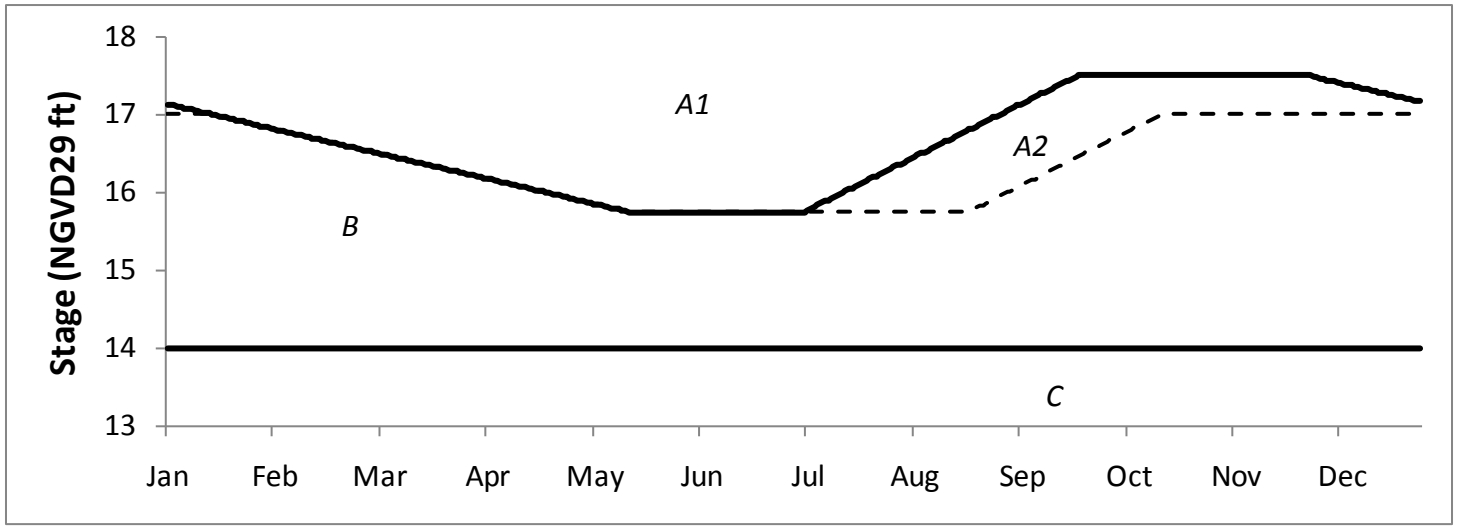


Figure 1. LOXA (LOXA###) and EVPA (LOX#) water quality monitoring stations, inflow and outflow structures, and canal and marsh stage gages used in this report. Solid polygons delineate transects, dashed polygons represent marsh zones.



DATES	USE GAGE	CONDITIONS
1 Jan - 30 Jun	1-8 Canal	All
1 Jul - 31 Dec	1-8 Canal	Except as noted below
	Avg. 1-7, 1-8T, 1-9	During rising stage when canal stage exceeds average.

ZONE	RELEASES
A1	Up to maximum at S-10 (and S-39 when agreed between Corp and SFWMD). Water supply releases as needed.
A2	S-10 releases based on Corps forecasts. Water supply releases as needed. If Lake Okeechobee stage is above WCA-1 stage or no more than one foot below WCA-1 stage, then water supply release from WCA-1 must be preceeded by an equivalent volume of inflow.
B	Water supply is needed. If Lake Okeechobee stage is above WCA-1 stage or no more than one foot below WCA-1 stage, then water supply releases from WCA-1 must be preceeded by an equivalent volume of inflow.
C	No net releases from WCA-1. Any water supply releases must be preceeded by an equivalent volume of inflow.

Figure 2. Water Regulation Schedule for the Arthur R. Marshall Loxahatchee National Wildlife Refuge (USACE 1994).

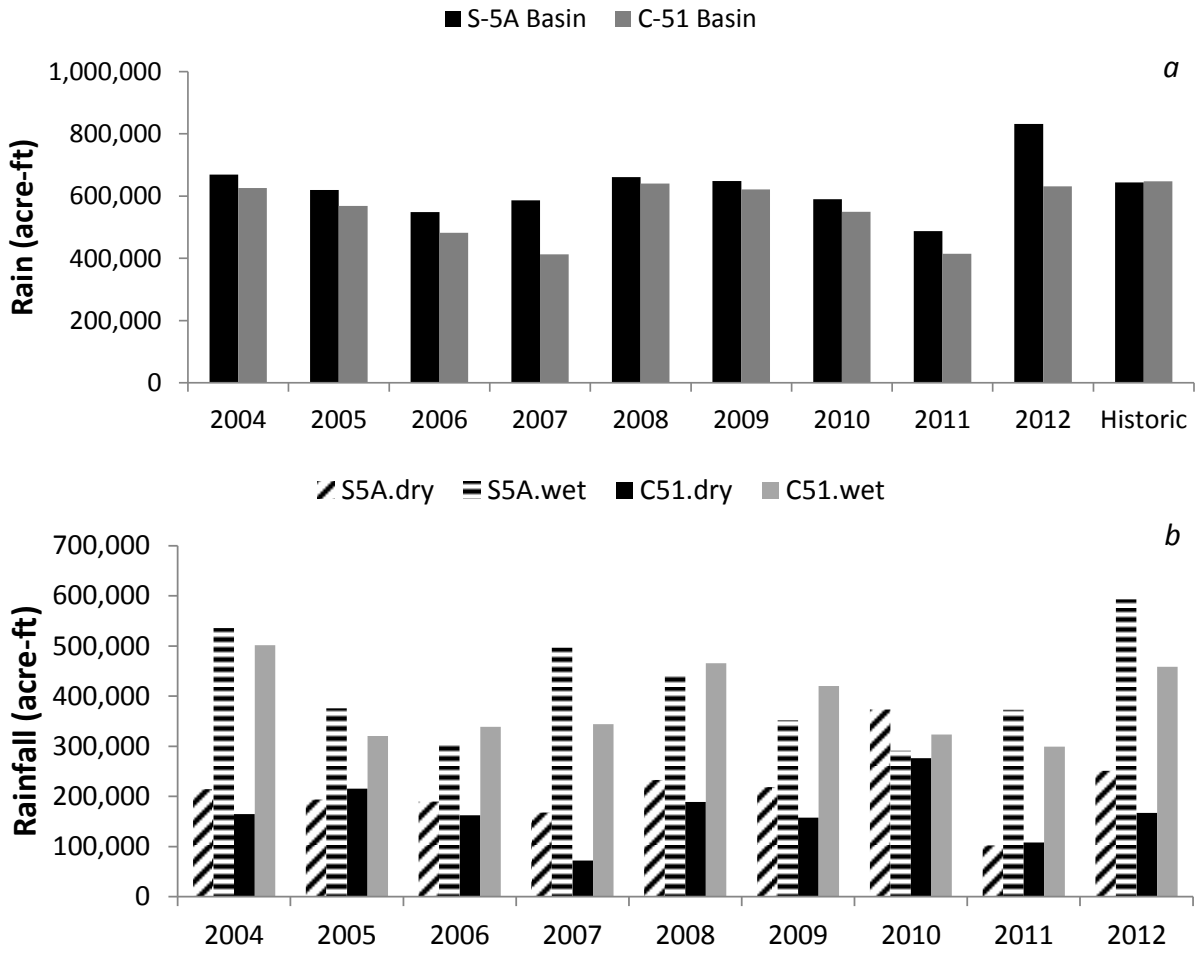


Figure 3. (*a*) Total annual and (*b*) dry and wet season rainfall for the S-5A and C-51 basins. Historic rainfall was determined from 1963 through 2012.

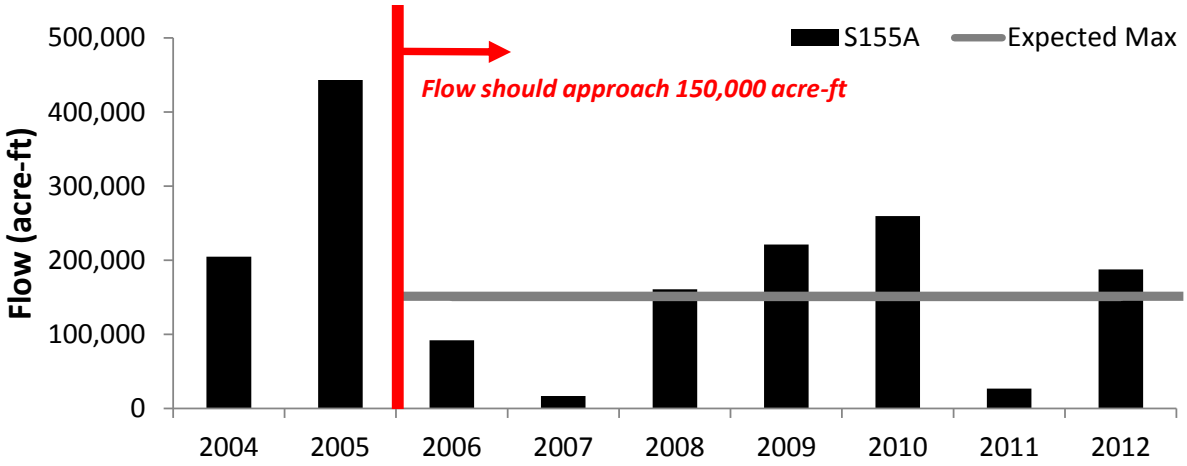


Figure 4. Total annual flows through the S-155A structure. The red vertical bar represents the period when flows through S-155A should approach 150,000 acre-ft as a mixture of L-8 and C-51 basin runoff (Gary Goforth, Inc. 2008). The horizontal grey bar represents the expected maximum (150,000 acre-ft) through S-155A.

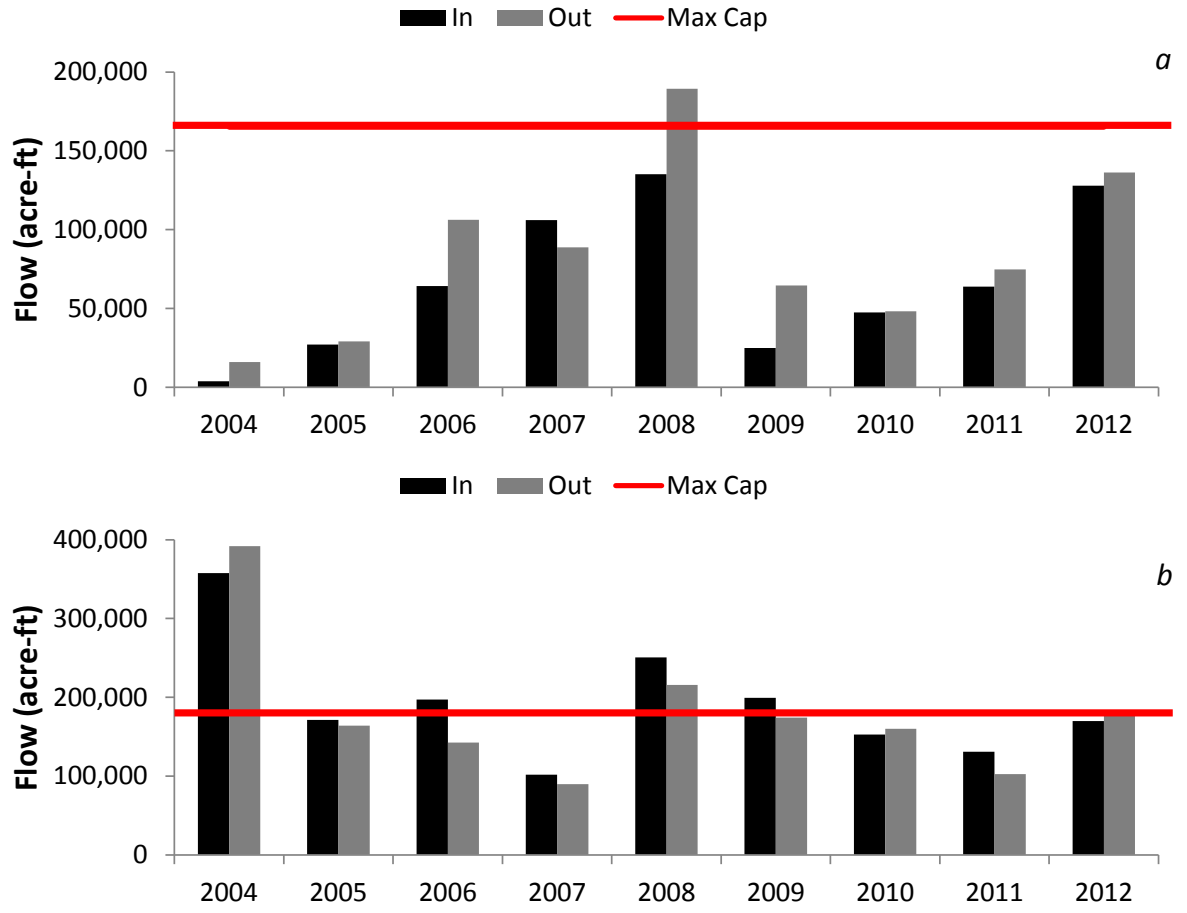


Figure 5. (a) STA-1E and (b) STA-1W annual inflow and outflow volumes. Horizontal red lines represent maximum treatment capacities for STA-1E (165,000 acre-ft) and STA-1W (180,000 acre-ft; Gary Goforth, Inc. 2008).

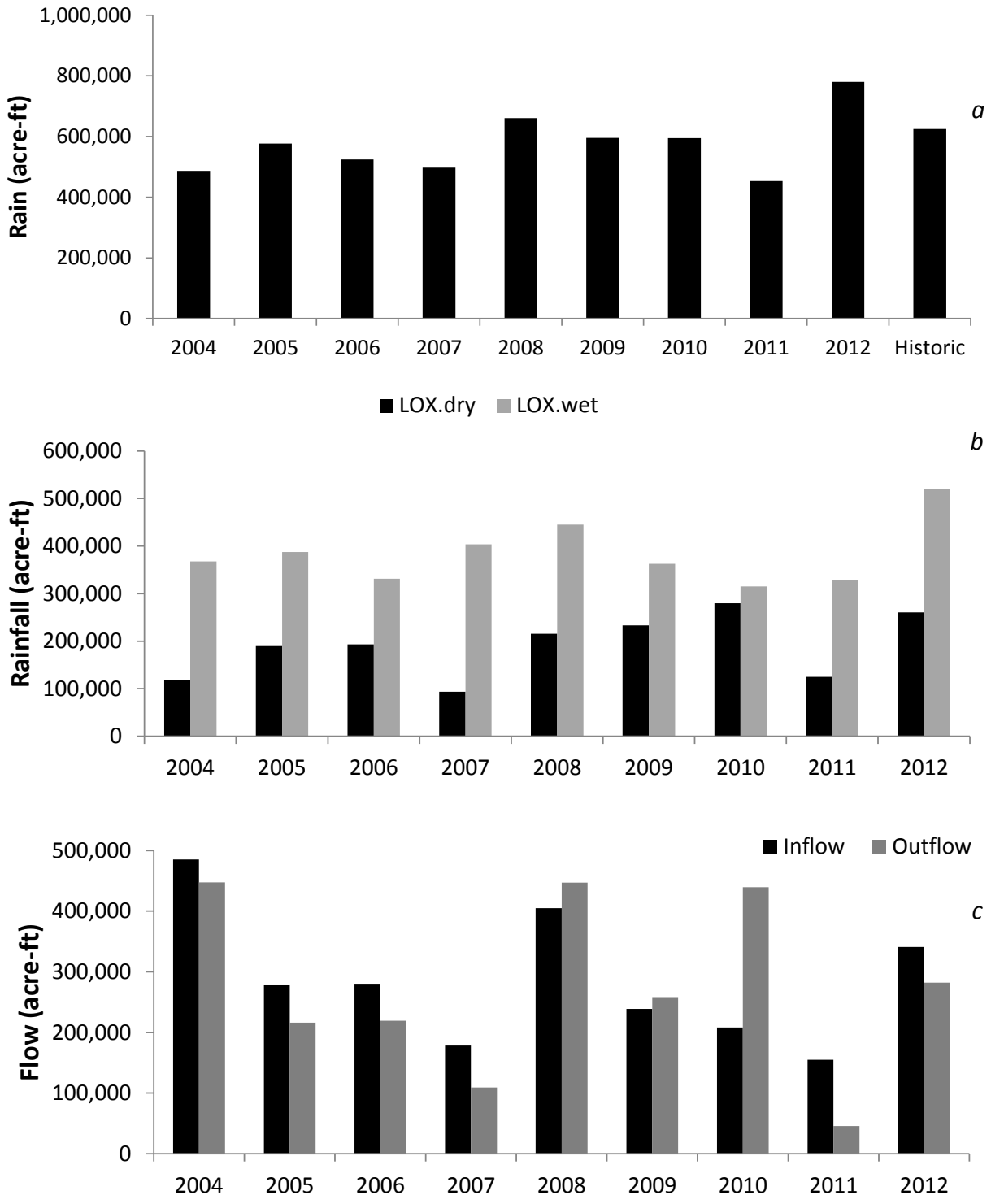


Figure 6. (*a*) Total annual rainfall, (*b*) total dry and wet season rainfall, and (*c*) inflow and outflow for the Refuge. Historic rainfall was determined from 1963 through 2012.

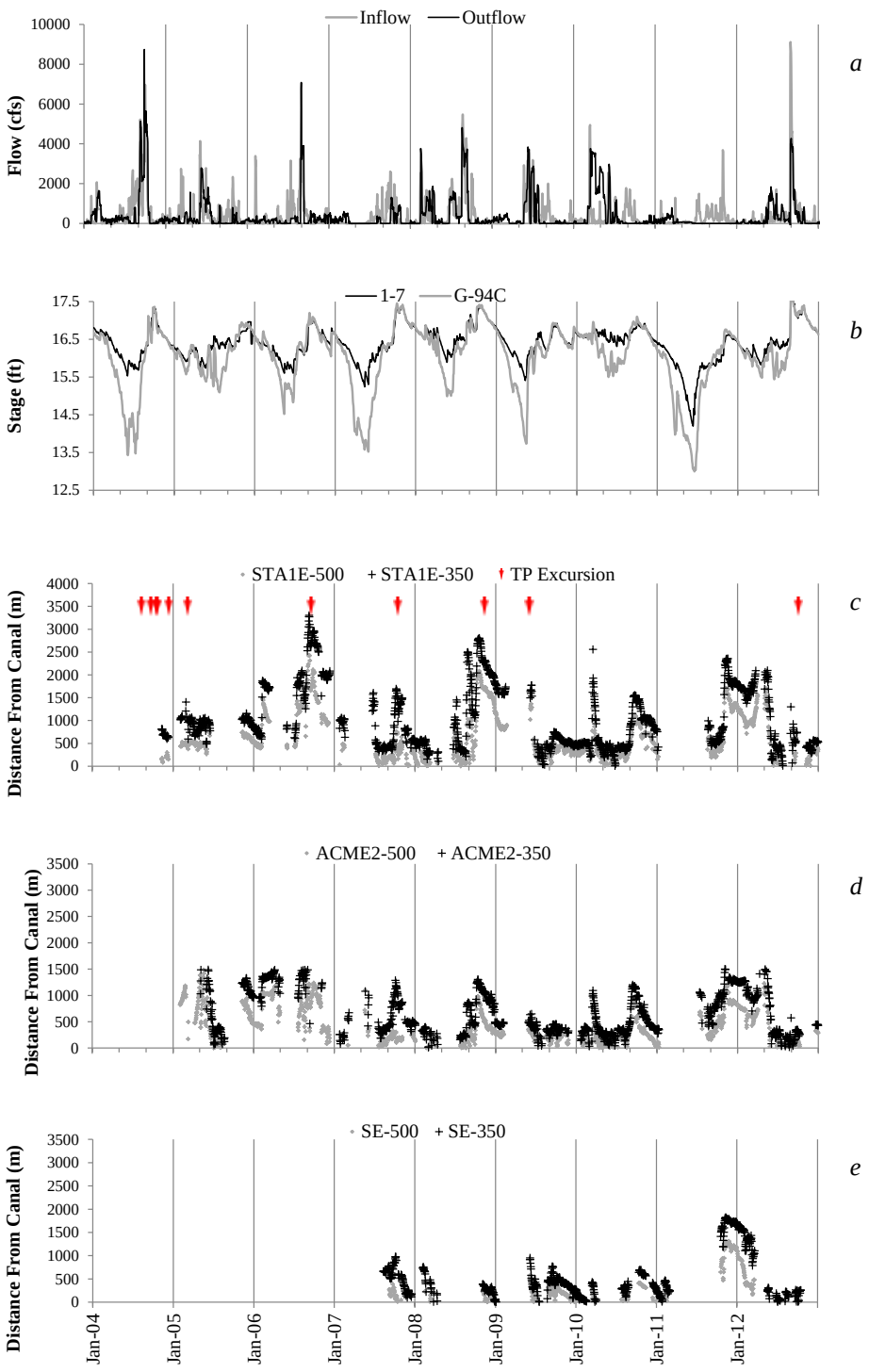


Figure 7. a) Inflow and outflow rates (cfs) summed for all structures from January 2004 to December 2012. b) Canal (G-94C) and marsh (1-7) stage levels (NGVD29). The 350 µS cm^{-1} and 500 µS cm^{-1} conductivity isopleths used to track canal water movement into and out of the marsh interior for: c) STA-1E, d) ACME-2, and e) SE transects. Red arrows indicate total phosphorus Consent Decree excursions.

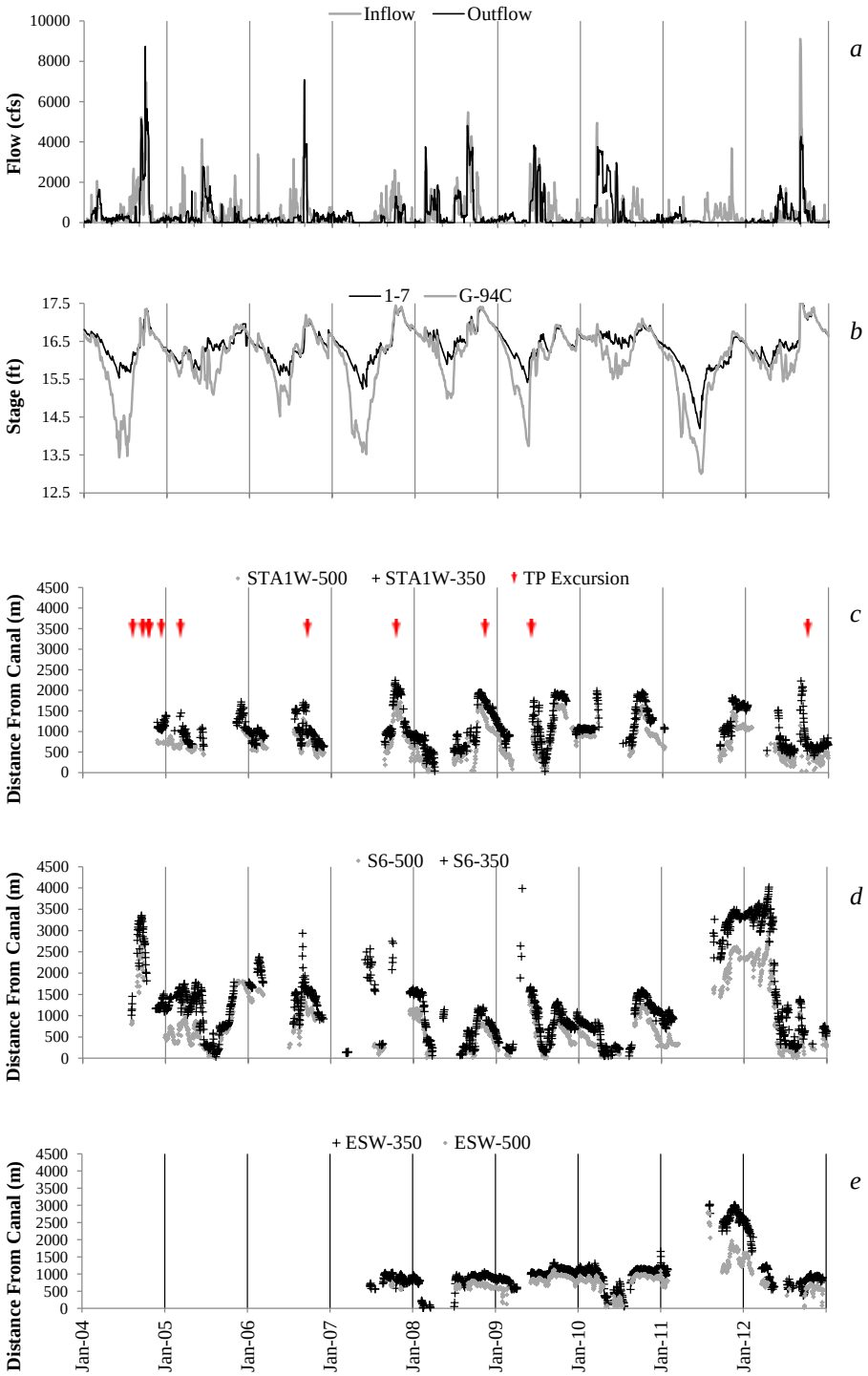


Figure 8. a) Inflow and outflow rates (cfs) summed for all structures from January 2004 to December 2012. b) Canal (G-94C) and marsh (1-7) stage levels (NGVD29). The 350 µS cm^{-1} and 500 µS cm^{-1} conductivity isopleths used to track canal water movement into and out of the marsh interior for: c) STA-1W, d) S-6, and e) the new ESW transects. Red arrows indicate total phosphorus Consent Decree excursions.

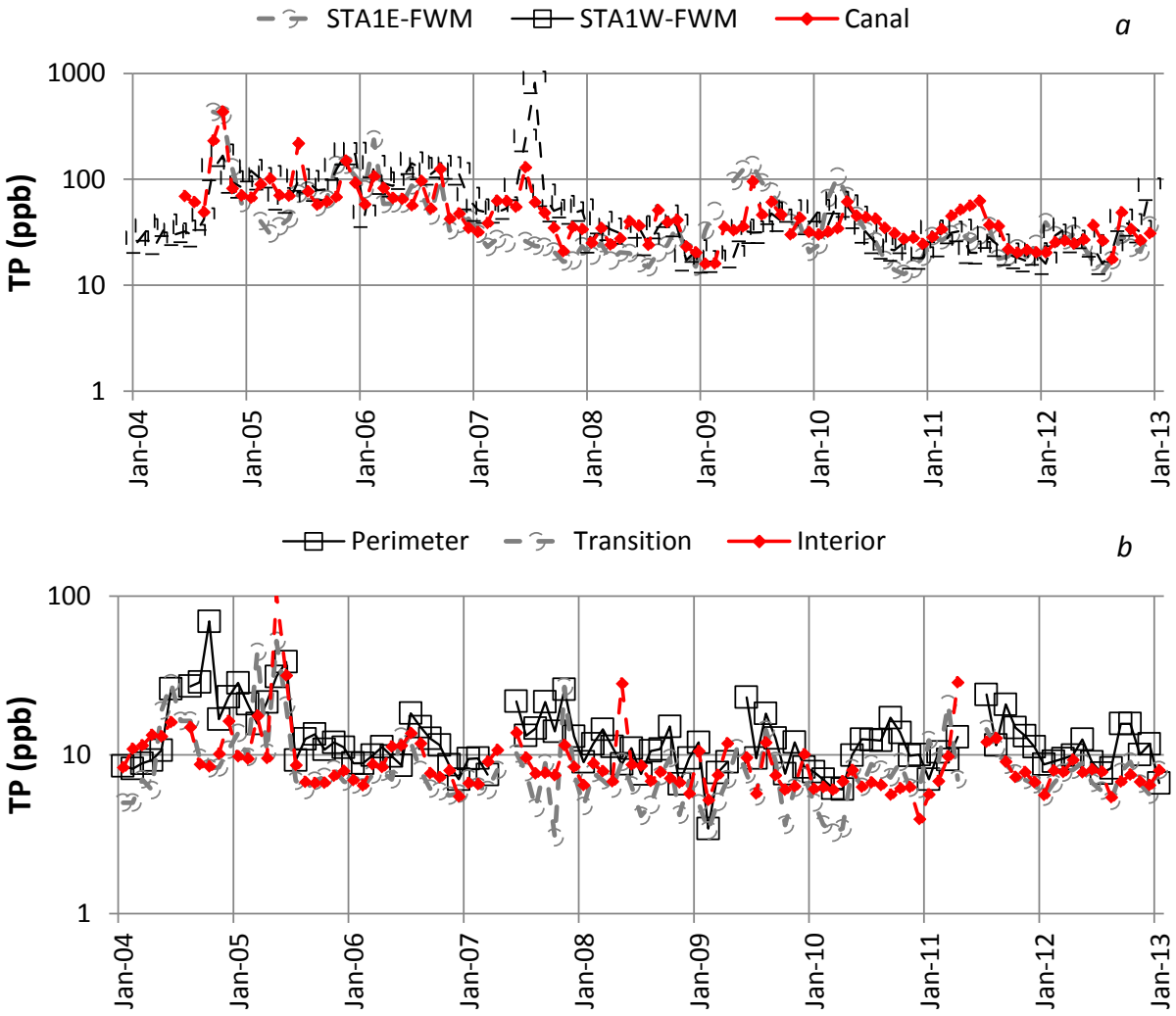


Figure 9. (a) Monthly TP FWM from Refuge inflow structures and TP concentration in the canal. (b) Monthly mean TP concentrations in marsh zones. The y-axes are based on a logarithmic scale.

APPENDIX A

Table A-1. *(a)* Parameter abbreviations spelled-out. *(b)* Individual EVPA and LOXA station summary statistics of water quality data for calendar year 2012. Where values were below the minimum detection limits, one-half of the minimum detection limit is reported (Weaver et al. 2008). Previous summary statistics (2004 – 2011) can be found in the previous annual reports (USFWS 2007a, b, 2009, 2010a, b, 2012a, b).

a

ABBREVIATION	**TERM**	**UNIT**
TEMP	Temperature	Celsius
DO	Dissolved oxygen	mg L^{-1}
SPCOND	Specific conductance	μS cm^{-1}
pH	pH	
TURB	Turbidity	mg L^{-1}
TSS	Total suspended solids	mg L^{-1}
NOX	Nitrate+nitrite	mg L^{-1}
TKN	Total Kjeldahl Nitrogen	mg L^{-1}
TN	Total nitrogen	mg L^{-1}
OPO4	Orthophosphate	μg L^{-1}
TP	Total phosphorus	μg L^{-1}
SIO2	Silica	mg L^{-1}
CA	Calcium	mg L^{-1}
CL	Chloride	mg L^{-1}
SO4	Sulfate	mg L^{-1}
ALKALNYA	Alkalinity	mg L^{-1}
TDOC	Total dissolved organic carbon	mg L^{-1}
TOC	Total organic carbon	mg L^{-1}
TDS	Total dissolved solids	mg L^{-1}

b

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2011	ALK	Mean	149	81	73	187	160	113	80	33	56	24
2012	ALK	Mean	149	75	54	164	120	87	57	21	48	27
2004-2011	ALK	Variance	1715	2130	1965	2533	1816	1676	2284	4920	627	57
2012	ALK	Variance	182	292	363	925	1004	187	254	65	203	28
2004-2011	ALK	25th Percentile	120	54	46	149	131	80	46	13	40	20
2012	ALK	25th Percentile	138	64	43	145	98	80	49	16	39	24
2004-2011	ALK	Median	152	62	62	188	160	102	53	16	51	23
2012	ALK	Median	146	68	48	153	113	82	52	19	46	26
2004-2011	ALK	75th Percentile	177	98	83	219	200	140	100	22	63	28
2012	ALK	75th Percentile	157	79	59	192	133	88	60	25	51	32
2004-2011	ALK	Count	33	23	27	90	34	29	11	20	59	26
2012	ALK	Count	4	4	4	12	6	4	4	4	11	6
2004-2011	CA	Mean	51	23	21	61	50	34	22	6	17	8
2012	CA	Mean	49	23	16	50	37	28	16	7	16	9
2004-2011	CA	Variance	201	214	206	344	241	200	269	2	75	6
2012	CA	Variance	13	80	67	60	97	60	40	10	31	11
2004-2011	CA	25th Percentile	41	16	12	45	37	23	13	5	12	6
2012	CA	25th Percentile	49	18	12	43	30	23	13	5	12	6
2004-2011	CA	Median	49	18	17	59	50	31	14	6	14	7
2012	CA	Median	51	19	13	49	33	24	14	6	14	8
2004-2011	CA	75th Percentile	59	25	24	71	62	44	24	7	21	8
2012	CA	75th Percentile	51	24	18	56	45	29	17	8	21	11
2004-2011	CA	Count	33	23	27	90	34	29	11	20	59	26
2012	CA	Count	4	4	4	12	6	4	4	4	11	6
2004-2011	CL	Mean	93	40	40	115	83	56	32	27	38	23
2012	CL	Mean	95	35	23	131	74	49	23	30	54	34
2004-2011	CL	Variance	858	486	567	1275	1338	835	435	80	570	89
2012	CL	Variance	3387	120	88	1900	2561	841	14	238	1112	463
2004-2011	CL	25th Percentile	72	26	22	94	54	31	22	20	22	17
2012	CL	25th Percentile	50	30	17	120	35	28	20	19	29	15
2004-2011	CL	Median	95	33	35	120	78	51	27	27	28	22
2012	CL	Median	77	30	22	129	42	34	22	27	37	23
2004-2011	CL	75th Percentile	120	44	48	140	110	78	29	34	44	27
2012	CL	75th Percentile	141	33	28	169	122	74	24	43	86	53
2004-2011	CL	Count	60	44	49	87	55	52	30	42	66	52
2012	CL	Count	10	5	7	12	10	9	4	10	12	11

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2011	DCS	Mean	0.25	0.21	0.23	0.43	0.32	0.24	0.17	0.21	0.40	0.27
2012	DCS	Mean	0.30	0.26	0.25	NA	0.31	0.26	0.22	0.25	0.42	0.32
2004-2011	DCS	Variance	0.02	0.02	0.03	NA	0.03	0.02	0.01	0.01	0.03	0.02
2012	DCS	Variance	0.03	0.04	0.03	NA	0.04	0.03	0.02	0.02	0.03	0.02
2004-2011	DCS	25th Percentile	0.16	0.10	0.10	0.43	0.21	0.13	0.08	0.13	0.29	0.18
2012	DCS	25th Percentile	0.16	0.13	0.13	NA	0.15	0.16	0.13	0.20	0.30	0.23
2004-2011	DCS	Median	0.23	0.20	0.21	0.43	0.30	0.22	0.15	0.20	0.40	0.26
2012	DCS	Median	0.24	0.22	0.20	NA	0.25	0.19	0.15	0.24	0.39	0.27
2004-2011	DCS	75th Percentile	0.35	0.31	0.36	0.43	0.43	0.36	0.26	0.28	0.53	0.37
2012	DCS	75th Percentile	0.43	0.41	0.39	NA	0.48	0.40	0.33	0.30	0.55	0.45
2004-2011	DCS	Count	72	68	73	1	69	70	69	70	74	71
2012	DCS	Count	12	9	10	0	12	11	9	11	12	12
2004-2011	NA	Mean	50	43	47	88	64	48	51	19	32	17
2012	NA	Mean	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Variance	201	749	413	451	386	203	662	17	323	19
2012	NA	Variance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	25th Percentile	43	22	33	69	49	38	42	15	18	13
2012	NA	25th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Median	52	34	35	90	56	43	63	18	26	16
2012	NA	Median	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	75th Percentile	57	57	61	96	78	55	66	22	50	21
2012	NA	75th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Count	8	6	7	18	9	6	3	4	13	5
2012	NA	Count	0	0	0	0	0	0	0	0	0	0
2004-2011	SIO2	Mean	16	16	15	15	19	17	18	5	9	6
2012	SIO2	Mean	10	11	6	14	13	12	9	6	7	5
2004-2011	SIO2	Variance	70	62	62	57	70	102	110	6	38	17
2012	SIO2	Variance	1	12	16	28	9	9	21	28	25	22
2004-2011	SIO2	25th Percentile	10	12	9	9	14	9	11	3	4	4
2012	SIO2	25th Percentile	9	9	4	9	11	11	6	3	3	2
2004-2011	SIO2	Median	14	15	15	14	20	15	17	4	9	5
2012	SIO2	Median	10	11	6	12	14	13	9	4	5	3
2004-2011	SIO2	75th Percentile	20	19	20	22	25	22	23	7	12	8
2012	SIO2	75th Percentile	11	14	8	19	15	13	12	7	9	4
2004-2011	SIO2	Count	33	23	27	89	34	29	11	20	59	26
2012	SIO2	Count	4	4	4	12	6	4	4	4	11	6

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2011	SO4	Mean	13.7	6.9	5.5	46.9	21.1	10.9	4.8	0.3	5.1	0.9
2012	SO4	Mean	7.6	6.2	3.0	46.5	9.4	5.7	3.5	0.7	3.5	1.1
2004-2011	SO4	Variance	169.4	132.0	115.4	519.8	355.8	176.4	117.3	0.2	47.1	3.6
2012	SO4	Variance	35.5	59.8	20.1	226.7	79.2	43.3	24.7	1.8	14.0	1.4
2004-2011	SO4	25th Percentile	3.7	1.4	1.1	31.0	7.1	2.3	0.7	0.0	1.2	0.3
2012	SO4	25th Percentile	2.5	1.2	0.9	40.3	3.2	1.9	0.8	0.1	1.2	0.5
2004-2011	SO4	Median	8.3	2.5	1.7	46.6	12.5	4.7	1.1	0.1	1.8	0.5
2012	SO4	Median	6.1	2.7	1.4	49.4	6.0	2.6	1.1	0.4	2.3	0.6
2004-2011	SO4	75th Percentile	24.0	4.6	3.4	62.0	34.0	12.0	2.0	0.5	7.1	0.6
2012	SO4	75th Percentile	12.6	6.6	2.0	57.4	10.8	6.6	3.8	0.5	3.9	1.2
2004-2011	SO4	Count	61	45	50	85	56	53	31	40	66	53
2012	SO4	Count	10	5	7	12	10	9	4	10	12	11
2004-2011	TDEPTH	Mean	0.23	0.20	0.21	0.35	0.25	0.22	0.15	0.16	0.31	0.20
2012	TDEPTH	Mean	0.26	0.30	0.26	NA	0.28	0.24	0.29	0.22	0.35	0.26
2004-2011	TDEPTH	Variance	0.01	0.01	0.02	0.04	0.02	0.01	0.01	0.01	0.02	0.01
2012	TDEPTH	Variance	0.02	0.01	0.02	NA	0.01	0.02	0.00	0.01	0.02	0.02
2004-2011	TDEPTH	25th Percentile	0.15	0.12	0.11	0.24	0.17	0.13	0.08	0.09	0.24	0.13
2012	TDEPTH	25th Percentile	0.16	0.28	0.15	NA	0.19	0.12	0.24	0.16	0.26	0.18
2004-2011	TDEPTH	Median	0.21	0.19	0.18	0.44	0.23	0.19	0.14	0.15	0.29	0.19
2012	TDEPTH	Median	0.19	0.30	0.28	NA	0.24	0.18	0.29	0.18	0.34	0.21
2004-2011	TDEPTH	75th Percentile	0.30	0.27	0.29	0.50	0.34	0.31	0.19	0.21	0.40	0.27
2012	TDEPTH	75th Percentile	0.36	0.35	0.32	NA	0.38	0.35	0.34	0.28	0.41	0.35
2004-2011	TDEPTH	Count	64	56	60	6	62	61	53	61	73	64
2012	TDEPTH	Count	10	5	7	0	10	9	4	10	12	11
2004-2011	TDOC	Mean	29	24	27	35	30	25	24	24	21	20
2012	TDOC	Mean	36	29	25	33	31	27	25	30	26	27
2004-2011	TDOC	Variance	37	28	28	2933	47	36	29	23	24	24
2012	TDOC	Variance	171	51	26	113	32	30	32	34	31	38
2004-2011	TDOC	25th Percentile	27	21	24	25	25	21	20	21	19	17
2012	TDOC	25th Percentile	33	27	24	25	30	26	25	27	24	23
2004-2011	TDOC	Median	31	22	26	30	30	25	23	23	20	19
2012	TDOC	Median	41	30	27	32	32	28	27	30	27	27
2004-2011	TDOC	75th Percentile	33	25	29	34	34	30	29	27	23	21
2012	TDOC	75th Percentile	44	32	28	37	34	29	28	32	31	30
2004-2011	TDOC	Count	33	23	27	89	33	27	11	20	58	25
2012	TDOC	Count	4	4	4	12	6	4	4	4	11	6

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2011	TDS	Mean	414	225	228	511	432	314	227	103	182	111
2012	TDS	Mean	310	189	134	489	300	198	142	124	187	124
2004-2011	TDS	Variance	11141	15028	15606	25750	18380	17061	28456	618	8336	1464
2012	TDS	Variance	2215	2078	2229	14510	17131	1156	826	1727	4229	2151
2004-2011	TDS	25th Percentile	353	148	135	406	319	200	135	86	115	89
2012	TDS	25th Percentile	289	157	102	444	195	173	124	95	137	90
2004-2011	TDS	Median	410	185	207	522	435	299	162	101	150	110
2012	TDS	Median	310	175	116	486	255	187	136	112	160	105
2004-2011	TDS	75th Percentile	513	249	263	605	549	410	285	113	225	120
2012	TDS	75th Percentile	331	207	148	560	380	212	153	141	239	151
2004-2011	TDS	Count	33	23	27	90	34	29	11	20	59	26
2012	TDS	Count	4	4	4	12	6	4	4	4	11	6
2004-2011	TOC	Mean	31	25	28	30	30	25	24	24	22	20
2012	TOC	Mean	35	30	25	34	32	27	26	29	27	27
2004-2011	TOC	Variance	32	58	52	40	51	32	29	23	25	24
2012	TOC	Variance	186	76	41	152	25	39	45	44	34	44
2004-2011	TOC	25th Percentile	28	21	23	26	25	20	20	21	19	18
2012	TOC	25th Percentile	31	26	24	25	31	25	25	26	24	22
2004-2011	TOC	Median	30	22	26	31	30	25	23	23	21	19
2012	TOC	Median	39	31	27	32	33	28	28	30	27	27
2004-2011	TOC	75th Percentile	34	24	31	34	34	29	28	28	23	22
2012	TOC	75th Percentile	42	34	28	37	34	30	29	33	31	32
2004-2011	TOC	Count	33	23	27	89	33	28	11	20	58	25
2012	TOC	Count	4	4	4	12	6	4	4	4	11	6
2004-2011	DO	Mean	3.1	3.9	2.8	5.0	3.1	3.5	3.0	5.1	3.3	5.5
2012	DO	Mean	2.3	3.9	2.8	4.8	2.8	3.1	2.9	4.5	2.5	4.4
2004-2011	DO	Variance	3.0	4.7	2.7	3.3	3.8	3.4	2.6	5.6	3.9	4.8
2012	DO	Variance	1.9	1.9	0.9	5.1	2.4	1.0	1.5	5.7	1.3	1.6
2004-2011	DO	25th Percentile	1.8	2.4	1.5	3.6	1.7	2.5	2.0	3.2	1.7	3.8
2012	DO	25th Percentile	1.5	2.6	2.3	3.7	2.1	2.6	2.0	2.5	1.6	3.5
2004-2011	DO	Median	2.8	3.8	2.4	5.2	2.4	3.2	2.7	5.1	2.8	5.2
2012	DO	Median	1.6	4.0	2.3	5.3	2.6	3.5	2.9	4.3	2.5	4.1
2004-2011	DO	75th Percentile	3.9	4.9	3.6	6.3	4.7	4.5	4.1	6.9	4.6	7.0
2012	DO	75th Percentile	3.7	5.1	3.0	6.4	3.4	3.9	3.8	5.9	3.2	5.4
2004-2011	DO	Count	58	43	48	87	57	53	33	43	65	54
2012	DO	Count	10	5	7	12	10	9	4	10	12	11

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2011	OPO4	Mean	6	8	8	25	14	7	12	5	7	7
2012	OPO4	Mean	28	1	6	23	15	9	1	1	7	5
2004-2011	OPO4	Variance	71	257	208	1787	1131	111	640	26	219	160
2012	OPO4	Variance	529	1	125	1018	145	274	2	2	194	95
2004-2011	OPO4	25th Percentile	3	3	3	4	3	3	3	3	3	3
2012	OPO4	25th Percentile	17	0	0	3	6	0	0	0	1	1
2004-2011	OPO4	Median	3	4	4	8	4	3	5	3	3	4
2012	OPO4	Median	30	0	1	5	14	2	0	0	1	2
2004-2011	OPO4	75th Percentile	6	7	7	22	7	6	6	5	5	6
2012	OPO4	75th Percentile	41	1	7	32	26	11	1	1	3	2
2004-2011	OPO4	Count	30	18	23	78	30	25	11	16	49	23
2012	OPO4	Count	4	4	4	12	6	4	4	4	11	6
2004-2011	PH	Mean	7.1	6.8	6.8	7.6	7.0	6.9	6.6	6.7	6.7	6.8
2012	PH	Mean	7.0	7.0	6.8	7.6	6.9	6.9	6.8	6.7	6.6	6.7
2004-2011	PH	Variance	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.3
2012	PH	Variance	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.4	0.0	0.1
2004-2011	PH	25th Percentile	7.0	6.6	6.6	7.5	6.8	6.7	6.5	6.5	6.5	6.5
2012	PH	25th Percentile	7.0	6.9	6.7	7.5	6.8	6.8	6.7	6.4	6.4	6.5
2004-2011	PH	Median	7.1	6.8	6.8	7.6	7.0	6.9	6.6	6.6	6.7	6.7
2012	PH	Median	7.0	6.9	6.8	7.7	6.9	6.9	6.8	6.4	6.5	6.6
2004-2011	PH	75th Percentile	7.2	7.0	7.0	7.8	7.2	7.1	6.8	6.9	6.9	7.0
2012	PH	75th Percentile	7.0	6.9	6.9	7.8	7.0	6.9	6.8	6.8	6.7	6.8
2004-2011	PH	Count	60	44	49	90	58	54	34	42	69	56
2012	PH	Count	10	5	7	12	10	9	4	10	12	11
2004-2011	SPCOND	Mean	616	278	270	811	572	387	226	145	246	132
2012	SPCOND	Mean	601	271	190	828	490	328	198	157	288	171
2004-2011	SPCOND	Variance	36230	24512	27171	52115	53089	33702	22885	2048	18352	1688
2012	SPCOND	Variance	61345	3824	3551	40449	54549	24933	3390	4200	17142	6793
2004-2011	SPCOND	25th Percentile	488	189	164	671	392	233	153	115	150	107
2012	SPCOND	25th Percentile	436	227	156	768	299	256	166	111	189	109
2004-2011	SPCOND	Median	643	242	207	836	518	352	180	137	194	129
2012	SPCOND	Median	562	245	165	793	388	291	177	140	272	117
2004-2011	SPCOND	75th Percentile	763	295	315	951	769	507	216	172	289	143
2012	SPCOND	75th Percentile	786	320	220	1021	711	432	208	216	398	249
2004-2011	SPCOND	Count	61	45	50	90	58	54	34	44	69	55
2012	SPCOND	Count	10	5	7	12	10	9	4	10	12	11

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2011	TDP	Mean	13	8	9	73	31	12	8	8	6	6
2012	TDP	Mean	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Variance	98	11	7	3278	3221	114	1	16	3	2
2012	TDP	Variance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	25th Percentile	8	6	7	35	10	7	7	6	5	5
2012	TDP	25th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Median	9	7	8	54	11	9	7	7	6	6
2012	TDP	Median	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	75th Percentile	13	10	11	92	19	10	8	10	7	7
2012	TDP	75th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Count	9	7	8	23	9	7	3	4	16	5
2012	TDP	Count	0	0	0	0	0	0	0	0	0	0
2004-2011	TEMP	Mean	23	22	22	25	23	23	23	24	23	24
2012	TEMP	Mean	23	24	25	25	24	24	26	26	24	25
2004-2011	TEMP	Variance	23	22	24	21	25	24	22	25	23	24
2012	TEMP	Variance	22	24	20	16	20	19	11	17	20	14
2004-2011	TEMP	25th Percentile	19	19	19	22	20	20	19	21	20	21
2012	TEMP	25th Percentile	20	21	22	23	21	22	24	24	22	22
2004-2011	TEMP	Median	23	23	22	26	23	24	23	24	24	25
2012	TEMP	Median	24	23	27	27	25	26	26	26	26	26
2004-2011	TEMP	75th Percentile	26	26	26	29	27	27	27	28	28	28
2012	TEMP	75th Percentile	27	28	28	29	28	28	28	30	27	27
2004-2011	TEMP	Count	61	45	50	90	58	54	34	44	69	56
2012	TEMP	Count	10	5	7	12	10	9	4	10	12	11
2004-2011	TN	Mean	1.5	1.1	1.2	2.0	1.6	1.2	1.1	1.3	1.1	1.1
2012	TN	Mean	NA	NA	NA	1.9	1.7	NA	NA	NA	1.4	2.0
2004-2011	TN	Variance	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.2
2012	TN	Variance	NA	NA	NA	0.2	0.0	NA	NA	NA	0.0	NA
2004-2011	TN	25th Percentile	1.4	0.9	0.9	1.6	1.3	0.9	0.9	1.1	0.9	1.0
2012	TN	25th Percentile	NA	NA	NA	1.6	1.7	NA	NA	NA	1.4	2.0
2004-2011	TN	Median	1.6	1.0	1.1	1.9	1.6	1.1	1.1	1.3	1.1	1.2
2012	TN	Median	NA	NA	NA	1.7	1.7	NA	NA	NA	1.5	2.0
2004-2011	TN	75th Percentile	1.7	1.3	1.4	2.2	1.9	1.5	1.3	1.4	1.3	1.3
2012	TN	75th Percentile	NA	NA	NA	2.2	1.7	NA	NA	NA	1.6	2.0
2004-2011	TN	Count	32	23	27	85	32	28	11	19	55	25
2012	TN	Count	0	0	0	7	2	0	0	0	6	1

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2011	TP	Mean	15	9	11	54	22	12	10	7	10	9
2012	TP	Mean	25	12	10	29	26	11	10	7	9	7
2004-2011	TP	Variance	115	24	42	1866	928	91	93	20	40	40
2012	TP	Variance	910	1	6	176	418	8	5	6	4	2
2004-2011	TP	25th Percentile	9	7	7	28	11	7	6	5	7	6
2012	TP	25th Percentile	11	11	8	20	14	9	10	5	7	7
2004-2011	TP	Median	13	9	10	37	17	10	8	6	8	7
2012	TP	Median	14	12	10	26	18	10	10	6	9	7
2004-2011	TP	75th Percentile	18	11	12	62	23	14	12	9	11	10
2012	TP	75th Percentile	25	12	12	32	23	13	11	8	10	8
2004-2011	TP	Count	60	44	50	90	57	54	34	44	68	54
2012	TP	Count	10	5	7	12	10	9	4	10	12	11
2004-2011	TSS	Mean	2.3	1.9	2.3	4.0	2.2	1.9	2.5	2.6	2.1	2.3
2012	TSS	Mean	0.1	0.1	1.0	181.0	45.0	0.1	1.5	1.6	45.0	22.0
2004-2011	TSS	Variance	2.2	0.9	2.2	6.9	3.2	1.0	13.2	2.2	2.3	2.1
2012	TSS	Variance	0.0	0.0	5.9	72384.3	18220.5	0.0	8.9	7.1	6551.0	4353.8
2004-2011	TSS	25th Percentile	1.6	1.6	1.6	2.5	1.0	1.0	1.5	1.6	1.6	1.6
2012	TSS	25th Percentile	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2004-2011	TSS	Median	2.0	1.6	2.3	3.0	1.6	1.6	1.6	2.5	1.6	2.0
2012	TSS	Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2004-2011	TSS	75th Percentile	2.7	2.5	2.7	4.7	2.5	2.5	2.5	3.0	2.5	2.5
2012	TSS	75th Percentile	0.1	0.1	0.1	485.0	0.1	0.1	1.5	2.8	66.0	0.1
2004-2011	TSS	Count	49	35	38	90	49	44	26	35	63	44
2012	TSS	Count	8	5	6	12	9	7	4	7	11	9
2004-2011	DEPTH	Mean	0.15	0.16	0.16	0.43	0.18	0.16	0.15	0.14	0.20	0.15
2012	DEPTH	Mean	0.13	0.15	0.13	NA	0.14	0.12	0.13	0.11	0.17	0.13
2004-2011	DEPTH	Variance	0.03	0.04	0.04	0.03	0.04	0.04	0.06	0.04	0.03	0.04
2012	DEPTH	Variance	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.00	0.00	0.00
2004-2011	DEPTH	25th Percentile	0.08	0.07	0.07	0.50	0.09	0.07	0.06	0.06	0.13	0.08
2012	DEPTH	25th Percentile	0.08	0.14	0.07	NA	0.09	0.06	0.12	0.07	0.13	0.09
2004-2011	DEPTH	Median	0.10	0.10	0.11	0.50	0.13	0.12	0.08	0.09	0.15	0.10
2012	DEPTH	Median	0.09	0.15	0.14	NA	0.12	0.09	0.12	0.09	0.17	0.10
2004-2011	DEPTH	75th Percentile	0.16	0.15	0.16	0.50	0.19	0.15	0.11	0.13	0.20	0.15
2012	DEPTH	75th Percentile	0.18	0.18	0.16	NA	0.19	0.17	0.13	0.15	0.20	0.17
2004-2011	DEPTH	Count	47.0	37.0	38.0	22.0	44.0	44.0	29.0	38.0	52.0	45.0
2012	DEPTH	Count	10.0	5.0	7.0	0.0	10.0	9.0	4.0	10.0	12.0	11.0

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2011	ALK	Mean	29	46	24	20	180	169	103	51	30	21
2012	ALK	Mean	23	42	22	20	152		89	57	30	17
2004-2011	ALK	Variance	102	461	66	45	2592	3803	1852	775	88	50
2012	ALK	Variance	40	238	34	27	668		1692	782	56	13
2004-2011	ALK	25th Percentile	23	34	17	14	150	141	70	31	25	16
2012	ALK	25th Percentile	17	31	17	15	134		56	37	27	15
2004-2011	ALK	Median	29	40	24	18	180	176	100	41	28	20
2012	ALK	Median	24	40	23	22	150		70	47	32	17
2004-2011	ALK	75th Percentile	35	53	29	26	210	216	127	65	38	26
2012	ALK	75th Percentile	27	44	26	23	164		124	73	36	19
2004-2011	ALK	Count	37	50	35	37	90	34	47	60	59	71
2012	ALK	Count	5	9	9	9	12		10	11	10	11
2004-2011	CA	Mean	9	14	7	6	59	55	33	16	9	7
2012	CA	Mean	7	13	7	6	45		26	17	10	10
2004-2011	CA	Variance	12	46	6	2	344	489	224	79	4	4
2012	CA	Variance	5	37	6	3	213		162	87	11	124
2004-2011	CA	25th Percentile	7	10	6	5	45	43	22	9	8	5
2012	CA	25th Percentile	5	8	5	5	42		17	11	8	5
2004-2011	CA	Median	8	12	7	6	58	53	31	13	8	6
2012	CA	Median	7	11	7	7	49		19	13	9	6
2004-2011	CA	75th Percentile	11	17	9	8	70	70	44	21	10	8
2012	CA	75th Percentile	8	15	8	7	53		38	23	13	8
2004-2011	CA	Count	37	50	35	37	90	33	47	60	60	71
2012	CA	Count	5	9	9	9	12		10	11	10	11
2004-2011	CL	Mean	19	29	19	18	108	88	59	31	19	24
2012	CL	Mean	25	42	23	21	108		71	51	25	23
2004-2011	CL	Variance	88	428	67	31	1679	1617	1243	523	47	119
2012	CL	Variance	256	1133	179	115	551		2385	1816	175	103
2004-2011	CL	25th Percentile	13	16	14	15	78	68	30	16	13	17
2012	CL	25th Percentile	14	15	14	14	101		27	18	16	16
2004-2011	CL	Median	18	21	18	18	111	94	54	21	18	21
2012	CL	Median	18	27	16	17	112		51	32	18	19
2004-2011	CL	75th Percentile	23	37	22	22	140	110	87	37	22	28
2012	CL	75th Percentile	38	70	34	27	122		120	97	36	30
2004-2011	CL	Count	59	62	63	61	89	34	65	70	72	81
2012	CL	Count	11	12	11	11	12		12	12	12	12

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2011	DCS	Mean	0.35	0.38	0.35	0.36	NA	0.81	0.36	0.42	0.42	0.46
2012	DCS	Mean	0.33	0.42	0.38	0.40	NA		0.41	0.45	0.43	0.50
2004-2011	DCS	Variance	0.02	0.03	0.02	0.02	NA	0.06	0.03	0.03	0.02	0.02
2012	DCS	Variance	0.03	0.03	0.02	0.02	NA		0.03	0.02	0.03	0.02
2004-2011	DCS	25th Percentile	0.24	0.29	0.26	0.25	NA	0.68	0.26	0.31	0.32	0.37
2012	DCS	25th Percentile	0.23	0.30	0.31	0.31	NA		0.28	0.35	0.31	0.38
2004-2011	DCS	Median	0.34	0.39	0.35	0.33	NA	0.86	0.37	0.42	0.42	0.47
2012	DCS	Median	0.30	0.37	0.34	0.33	NA		0.37	0.40	0.38	0.48
2004-2011	DCS	75th Percentile	0.44	0.51	0.43	0.44	NA	0.96	0.46	0.53	0.53	0.58
2012	DCS	75th Percentile	0.46	0.54	0.46	0.47	NA		0.55	0.58	0.53	0.59
2004-2011	DCS	Count	73	75	76	74	0	36	77	80	81	82
2012	DCS	Count	12	12	12	12	0		12	12	12	12
2004-2011	NA	Mean	16	24	14	12	80	60	57	28	14	13
2012	NA	Mean	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	NA	Variance	83	197	37	9	551	815	487	230	15	12
2012	NA	Variance	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	NA	25th Percentile	11	17	11	10	62	46	36	20	12	11
2012	NA	25th Percentile	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	NA	Median	14	21	13	12	80	52	59	22	14	12
2012	NA	Median	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	NA	75th Percentile	17	25	14	13	98	74	73	39	15	14
2012	NA	75th Percentile	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	NA	Count	9	11	7	8	18	15	7	11	12	13
2012	NA	Count	0	0	0	0	0		0	0	0	0
2004-2011	SIO2	Mean	6	7	5	5	15	16	14	10	8	5
2012	SIO2	Mean	3	6	3	3	16		11	8	4	4
2004-2011	SIO2	Variance	17	21	13	10	59	54	52	35	16	4
2012	SIO2	Variance	1	12	2	1	15		20	24	3	4
2004-2011	SIO2	25th Percentile	3	4	3	2	9	9	8	5	5	3
2012	SIO2	25th Percentile	2	4	3	2	13		8	5	3	2
2004-2011	SIO2	Median	5	7	5	4	16	17	14	8	7	5
2012	SIO2	Median	3	4	3	2	16		9	7	4	4
2004-2011	SIO2	75th Percentile	7	9	7	6	21	23	20	14	10	6
2012	SIO2	75th Percentile	3	5	4	5	18		14	10	5	6
2004-2011	SIO2	Count	37	50	35	37	89	33	47	59	60	70
2012	SIO2	Count	5	9	9	9	12		10	11	10	11

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2011	SO4	Mean	1.1	3.0	0.6	0.3	49.2	33.0	14.0	4.3	0.8	0.2
2012	SO4	Mean	0.5	1.7	0.4	0.2	43.1		6.6	2.8	0.6	0.3
2004-2011	SO4	Variance	6.5	22.9	0.6	0.1	585.2	587.3	202.1	28.6	0.4	0.0
2012	SO4	Variance	0.0	2.0	0.1	0.0	151.9		36.9	7.3	0.0	0.0
2004-2011	SO4	25th Percentile	0.4	0.7	0.3	0.1	33.0	14.7	3.5	1.0	0.5	0.0
2012	SO4	25th Percentile	0.5	0.8	0.2	0.1	35.2		2.6	0.9	0.5	0.1
2004-2011	SO4	Median	0.6	1.4	0.5	0.2	51.0	23.6	8.2	2.8	0.6	0.1
2012	SO4	Median	0.5	1.0	0.5	0.1	42.8		3.6	1.4	0.6	0.2
2004-2011	SO4	75th Percentile	0.8	2.9	0.6	0.5	67.5	50.8	19.5	5.8	1.0	0.2
2012	SO4	75th Percentile	0.6	2.3	0.6	0.4	47.2		8.8	4.2	0.7	0.5
2004-2011	SO4	Count	60	62	61	52	89	34	66	71	73	67
2012	SO4	Count	11	12	11	11	12		12	12	12	12
2004-2011	TDEPTH	Mean	0.23	0.27	0.23	0.22	0.40	0.48	0.27	0.31	0.30	0.35
2012	TDEPTH	Mean	0.25	0.28	0.28	0.29	NA		0.31	0.34	0.33	0.37
2004-2011	TDEPTH	Variance	0.01	0.02	0.02	0.01	NA	0.08	0.02	0.02	0.02	0.02
2012	TDEPTH	Variance	0.01	0.02	0.02	0.02	NA		0.02	0.02	0.03	0.02
2004-2011	TDEPTH	25th Percentile	0.16	0.18	0.15	0.15	0.40	0.30	0.18	0.20	0.19	0.27
2012	TDEPTH	25th Percentile	0.17	0.20	0.21	0.22	NA		0.23	0.26	0.25	0.28
2004-2011	TDEPTH	Median	0.20	0.26	0.19	0.21	0.40	0.42	0.26	0.29	0.30	0.35
2012	TDEPTH	Median	0.19	0.24	0.22	0.24	NA		0.28	0.31	0.29	0.33
2004-2011	TDEPTH	75th Percentile	0.31	0.35	0.30	0.31	0.40	0.63	0.37	0.42	0.41	0.44
2012	TDEPTH	75th Percentile	0.33	0.30	0.36	0.37	NA		0.42	0.40	0.42	0.43
2004-2011	TDEPTH	Count	71	72	74	73	1	33	73	78	80	84
2012	TDEPTH	Count	11	12	11	11	0		12	12	12	12
2004-2011	TDOC	Mean	17	19	17	17	36	29	25	19	18	18
2012	TDOC	Mean	21	22	21	22	31		27	22	23	20
2004-2011	TDOC	Variance	18	26	21	17	3637	34	38	37	15	16
2012	TDOC	Variance	6	18	21	25	79		56	35	25	19
2004-2011	TDOC	25th Percentile	14	16	14	15	24	26	21	16	15	15
2012	TDOC	25th Percentile	21	20	18	19	26		22	18	17	17
2004-2011	TDOC	Median	16	17	16	16	30	30	24	18	18	17
2012	TDOC	Median	21	23	20	21	27		29	21	24	21
2004-2011	TDOC	75th Percentile	18	20	18	19	35	32	30	21	20	20
2012	TDOC	75th Percentile	22	24	24	22	33		33	26	27	24
2004-2011	TDOC	Count	36	49	34	37	88	32	45	58	58	69
2012	TDOC	Count	5	9	9	9	12		10	11	10	11

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2011	TDS	Mean	102	145	89	87	493	446	299	156	105	99
2012	TDS	Mean	91	144	99	101	448		265	175	114	97
2004-2011	TDS	Variance	2131	5234	1036	792	28943	37694	21574	7402	738	1125
2012	TDS	Variance	926	6004	1142	806	7414		23024	12203	1443	715
2004-2011	TDS	25th Percentile	66	102	67	66	395	341	180	98	85	77
2012	TDS	25th Percentile	72	91	80	80	398		155	92	91	80
2004-2011	TDS	Median	92	126	86	87	505	450	279	120	98	93
2012	TDS	Median	77	103	86	96	461		172	126	101	97
2004-2011	TDS	75th Percentile	113	176	112	101	612	560	405	199	121	119
2012	TDS	75th Percentile	92	184	103	104	507		406	251	141	108
2004-2011	TDS	Count	37	50	35	37	90	34	47	60	60	71
2012	TDS	Count	5	9	9	9	12		10	11	10	11
2004-2011	TOC	Mean	17	19	17	18	29	29	25	19	19	18
2012	TOC	Mean	21	22	21	22	31		27	22	23	20
2004-2011	TOC	Variance	18	26	20	17	44	39	36	37	32	15
2012	TOC	Variance	10	21	23	28	85		54	37	28	22
2004-2011	TOC	25th Percentile	14	16	14	15	25	26	21	16	15	15
2012	TOC	25th Percentile	21	20	18	19	26		22	18	18	17
2004-2011	TOC	Median	16	18	16	16	30	30	26	18	18	17
2012	TOC	Median	21	23	20	20	27		29	21	25	22
2004-2011	TOC	75th Percentile	18	21	18	19	34	33	30	21	19	20
2012	TOC	75th Percentile	24	25	24	23	34		33	26	27	24
2004-2011	TOC	Count	36	49	34	37	88	33	45	58	58	69
2012	TOC	Count	5	9	9	9	12		10	11	10	11
2004-2011	DO	Mean	4.3	3.4	4.5	3.9	4.9	1.4	2.3	3.3	5.2	5.6
2012	DO	Mean	3.0	2.3	3.4	2.9	5.2		2.2	2.9	4.3	5.3
2004-2011	DO	Variance	3.5	2.8	3.7	4.4	3.6	0.6	4.3	9.8	36.4	4.1
2012	DO	Variance	0.8	1.5	1.7	1.8	3.6		4.6	2.9	1.5	4.6
2004-2011	DO	25th Percentile	3.1	2.3	3.1	2.3	3.6	0.7	1.1	2.0	3.5	4.4
2012	DO	25th Percentile	2.4	1.3	2.5	1.9	4.2		1.0	1.6	3.3	3.7
2004-2011	DO	Median	4.4	2.8	4.2	3.5	4.6	1.4	1.6	2.9	4.4	5.6
2012	DO	Median	2.9	2.1	2.8	2.9	5.6		1.5	2.4	4.6	5.6
2004-2011	DO	75th Percentile	5.4	4.6	5.6	5.0	6.2	1.9	2.6	3.7	5.8	6.9
2012	DO	75th Percentile	3.4	3.4	3.8	3.9	6.4		2.1	3.5	4.9	6.5
2004-2011	DO	Count	59	62	63	63	84	32	62	68	69	78
2012	DO	Count	11	12	11	11	12		12	12	9	12

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2011	OPO4	Mean	5	8	5	6	22	20	9	6	6	5
2012	OPO4	Mean	1	1	1	4	10		11	6	3	3
2004-2011	OPO4	Variance	51	247	59	109	1143	1072	208	110	107	37
2012	OPO4	Variance	2	1	0	78	163		388	91	46	38
2004-2011	OPO4	25th Percentile	2	3	2	3	4	4	3	3	3	3
2012	OPO4	25th Percentile	0	0	0	0	4		1	1	0	0
2004-2011	OPO4	Median	3	3	3	3	10	7	4	4	3	3
2012	OPO4	Median	0	0	1	1	5		3	2	1	1
2004-2011	OPO4	75th Percentile	5	5	5	4	17	13	7	5	5	4
2012	OPO4	75th Percentile	1	1	1	1	13		5	2	2	2
2004-2011	OPO4	Count	33	45	31	32	81	29	40	51	50	57
2012	OPO4	Count	5	9	9	9	12		10	11	10	11
2004-2011	PH	Mean	6.7	6.8	6.8	6.7	7.6	7.1	6.8	6.7	6.7	6.7
2012	PH	Mean	6.4	6.6	6.4	6.5	7.5		6.8	6.7	6.8	6.5
2004-2011	PH	Variance	0.3	0.2	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.2
2012	PH	Variance	0.1	0.1	0.1	0.2	0.1		0.1	0.1	0.2	0.1
2004-2011	PH	25th Percentile	6.4	6.5	6.4	6.4	7.5	7.0	6.6	6.4	6.4	6.4
2012	PH	25th Percentile	6.2	6.3	6.2	6.1	7.4		6.5	6.4	6.5	6.2
2004-2011	PH	Median	6.5	6.7	6.6	6.6	7.6	7.2	6.8	6.6	6.6	6.6
2012	PH	Median	6.3	6.5	6.3	6.2	7.6		6.9	6.6	6.8	6.4
2004-2011	PH	75th Percentile	6.8	6.9	7.0	7.0	7.8	7.2	7.0	6.9	6.9	7.0
2012	PH	75th Percentile	6.5	6.6	6.5	6.8	7.7		7.0	6.9	7.1	6.8
2004-2011	PH	Count	62	65	67	67	87	33	65	70	71	80
2012	PH	Count	11	12	11	11	12		12	12	12	12
2004-2011	SPCOND	Mean	130	200	124	117	782	682	414	219	142	147
2012	SPCOND	Mean	137	234	193	116	723		434	295	151	119
2004-2011	SPCOND	Variance	2762	15005	2150	1374	63350	79141	49682	18034	11220	12618
2012	SPCOND	Variance	6196	22498	46149	2054	16512		61084	40606	4000	1948
2004-2011	SPCOND	25th Percentile	96	127	91	91	630	556	233	124	105	100
2012	SPCOND	25th Percentile	80	119	98	85	652		227	144	112	95
2004-2011	SPCOND	Median	116	159	115	115	818	700	367	159	120	120
2012	SPCOND	Median	108	172	109	102	742		328	201	125	107
2004-2011	SPCOND	75th Percentile	150	248	137	129	979	861	597	278	152	151
2012	SPCOND	75th Percentile	203	354	206	149	814		680	510	198	147
2004-2011	SPCOND	Count	61	65	66	66	87	33	65	70	69	78
2012	SPCOND	Count	11	12	11	11	12		12	12	12	12

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2011	TDP	Mean	6	6	6	5	60	22	9	5	5	5
2012	TDP	Mean	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	TDP	Variance	2	3	1	1	2566	1171	5	1	1	1
2012	TDP	Variance	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	TDP	25th Percentile	5	4	5	5	21	11	8	5	4	5
2012	TDP	25th Percentile	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	TDP	Median	6	6	6	6	38	13	10	6	5	5
2012	TDP	Median	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	TDP	75th Percentile	7	7	6	6	83	17	10	6	6	6
2012	TDP	75th Percentile	NA	NA	NA	NA	NA		NA	NA	NA	NA
2004-2011	TDP	Count	9	13	7	8	23	19	7	13	13	16
2012	TDP	Count	0	0	0	0	0		0	0	0	0
2004-2011	TEMP	Mean	23	24	24	23	25	23	22	23	24	25
2012	TEMP	Mean	24	24	24	24	25		24	24	26	26
2004-2011	TEMP	Variance	24	24	25	22	17	16	23	23	24	19
2012	TEMP	Variance	17	20	16	15	17		18	16	15	17
2004-2011	TEMP	25th Percentile	21	21	20	20	22	20	19	20	21	22
2012	TEMP	25th Percentile	21	21	22	21	22		21	21	22	22
2004-2011	TEMP	Median	23	24	24	25	26	22	22	23	24	26
2012	TEMP	Median	25	26	25	25	27		26	25	27	27
2004-2011	TEMP	75th Percentile	27	28	27	27	29	27	26	27	28	28
2012	TEMP	75th Percentile	27	27	28	27	28		28	27	28	28
2004-2011	TEMP	Count	62	65	67	67	88	34	65	71	72	81
2012	TEMP	Count	11	12	11	11	12		12	12	12	12
2004-2011	TN	Mean	0.9	1.1	1.0	1.0	1.8	1.9	1.2	1.0	1.1	1.3
2012	TN	Mean	1.4	1.3	1.3	1.3	1.5		1.5	1.2	1.4	1.4
2004-2011	TN	Variance	0.1	0.1	0.1	0.1	0.4	0.5	0.2	0.1	1.2	1.0
2012	TN	Variance	NA	0.0	0.1	0.1	0.0		0.1	0.1	0.0	0.0
2004-2011	TN	25th Percentile	0.7	0.9	0.8	0.8	1.5	1.6	0.9	0.8	0.8	1.0
2012	TN	25th Percentile	1.4	1.2	1.2	1.1	1.5		1.3	1.1	1.2	1.2
2004-2011	TN	Median	0.9	1.0	1.0	0.9	1.8	2.0	1.1	0.9	0.9	1.1
2012	TN	Median	1.4	1.2	1.3	1.2	1.5		1.6	1.2	1.5	1.5
2004-2011	TN	75th Percentile	1.0	1.2	1.1	1.2	2.1	2.2	1.6	1.0	1.1	1.3
2012	TN	75th Percentile	1.4	1.3	1.4	1.4	1.6		1.7	1.4	1.5	1.6
2004-2011	TN	Count	36	48	35	36	85	33	44	56	56	66
2012	TN	Count	1	4	4	4	7		5	6	5	6

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2011	TP	Mean	9	9	7	7	46	58	16	9	10	11
2012	TP	Mean	7	7	6	6	22		16	7	8	7
2004-2011	TP	Variance	82	22	29	50	1436	1881	126	63	138	259
2012	TP	Variance	3	3	3	4	114		30	2	2	25
2004-2011	TP	25th Percentile	4	6	4	4	25	24	10	6	5	5
2012	TP	25th Percentile	6	6	6	5	18		13	6	7	5
2004-2011	TP	Median	7	8	6	6	33	47	13	8	7	7
2012	TP	Median	7	7	6	7	20		15	8	8	6
2004-2011	TP	75th Percentile	9	12	8	8	50	80	19	10	9	10
2012	TP	75th Percentile	8	8	7	7	25		17	8	9	7
2004-2011	TP	Count	61	64	65	63	90	35	67	72	71	80
2012	TP	Count	11	12	11	11	12		12	12	12	12
2004-2011	TSS	Mean	3.6	2.3	2.4	2.4	3.9	9.9	2.1	2.9	3.7	5.8
2012	TSS	Mean	15.9	30.8	29.6	30.0	152.6		47.0	42.0	19.3	26.2
2004-2011	TSS	Variance	35.8	1.5	2.1	3.4	22.5	150.1	1.6	28.1	119.6	408.0
2012	TSS	Variance	2270.5	4413.4	2687.5	2676.8	51361.0		10587.2	5339.8	1663.2	2023.9
2004-2011	TSS	25th Percentile	1.6	1.6	1.6	1.6	2.5	1.6	1.5	1.6	1.6	1.6
2012	TSS	25th Percentile	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1
2004-2011	TSS	Median	2.5	2.0	2.5	2.3	2.5	4.0	2.0	2.0	2.0	2.0
2012	TSS	Median	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1
2004-2011	TSS	75th Percentile	3.0	2.5	2.5	2.5	4.5	11.0	2.5	2.5	2.5	2.5
2012	TSS	75th Percentile	0.1	0.1	43.0	50.0	412.0		0.1	63.0	0.1	43.0
2004-2011	TSS	Count	51	59	49	52	89	33	50	61	60	71
2012	TSS	Count	9	10	11	11	12		10	11	10	11
2004-2011	DEPTH	Mean	0.16	0.18	0.17	0.16	0.44	0.40	0.19	0.20	0.20	0.20
2012	DEPTH	Mean	0.12	0.15	0.14	0.14	NA		0.18	0.20	0.19	0.21
2004-2011	DEPTH	Variance	0.03	0.03	0.03	0.03	0.03	0.10	0.03	0.03	0.03	0.02
2012	DEPTH	Variance	0.00	0.01	0.00	0.00	NA		0.02	0.02	0.02	0.02
2004-2011	DEPTH	25th Percentile	0.09	0.11	0.09	0.08	0.50	0.16	0.12	0.13	0.12	0.15
2012	DEPTH	25th Percentile	0.08	0.10	0.10	0.11	NA		0.12	0.13	0.12	0.14
2004-2011	DEPTH	Median	0.12	0.14	0.11	0.12	0.50	0.27	0.16	0.15	0.16	0.18
2012	DEPTH	Median	0.09	0.13	0.11	0.12	NA		0.14	0.16	0.15	0.16
2004-2011	DEPTH	75th Percentile	0.16	0.17	0.18	0.16	0.50	0.50	0.20	0.21	0.21	0.23
2012	DEPTH	75th Percentile	0.17	0.21	0.18	0.18	NA		0.25	0.21	0.25	0.26
2004-2011	DEPTH	Count	52.0	49.0	52.0	51.0	27.0	15.0	48.0	52.0	52.0	59.0
2012	DEPTH	Count	11.0	12.0	11.0	11.0	0.0		12.0	12.0	12.0	12.0

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130	LOXA131
2004-2011	ALK	Mean	204	128	132	38	86	21	18	158	98	52
2012	ALK	Mean		82		38	67	18	14	136	80	46
2004-2011	ALK	Variance	537	2818	1998	293	1845	104	114	1867	1985	1092
2012	ALK	Variance		1601		307	1082	12	17	1222	500	261
2004-2011	ALK	25th Percentile	193	100	112	26	54	14	13	130	62	33
2012	ALK	25th Percentile		56		29	44	15	12	110	69	36
2004-2011	ALK	Median	200	129	119	35	72	20	15	150	87	45
2012	ALK	Median		70		33	64	17	15	127	80	39
2004-2011	ALK	75th Percentile	216	160	133	45	116	24	19	188	131	63
2012	ALK	75th Percentile		105		43	77	21	17	149	90	56
2004-2011	ALK	Count	5	52	9	54	57	43	30	91	60	55
2012	ALK	Count		9		8	11	9	6	12	11	11
2004-2011	CA	Mean	67	41	41	14	29	8	6	55	32	16
2012	CA	Mean		25		12	22	7	6	46	27	16
2004-2011	CA	Variance	84	333	236	33	255	10	1	254	232	55
2012	CA	Variance		170		41	122	2	4	108	51	20
2004-2011	CA	25th Percentile	66	27	34	11	17	7	5	44	19	10
2012	CA	25th Percentile		17		8	14	5	4	38	23	15
2004-2011	CA	Median	68	42	36	13	27	8	5	53	29	14
2012	CA	Median		20		11	20	7	5	45	25	16
2004-2011	CA	75th Percentile	73	52	39	16	39	9	7	65	42	19
2012	CA	75th Percentile		34		16	26	8	6	51	32	17
2004-2011	CA	Count	5	52	10	54	57	43	30	91	59	55
2012	CA	Count		9		8	11	9	6	12	11	11
2004-2011	CL	Mean	100	60	65	33	57	24	19	96	56	34
2012	CL	Mean		50		47	51	21	20	101	62	33
2004-2011	CL	Variance	1609	1025	858	346	899	80	37	1594	983	353
2012	CL	Variance		932		1036	1156	134	67	3684	1817	165
2004-2011	CL	25th Percentile	78	33	60	21	33	18	15	66	29	20
2012	CL	25th Percentile		29		20	25	12	14	54	28	24
2004-2011	CL	Median	98	58	66	28	53	22	20	96	49	31
2012	CL	Median		34		43	33	19	18	80	38	29
2004-2011	CL	75th Percentile	125	81	67	36	79	28	24	116	75	45
2012	CL	75th Percentile		81		72	75	28	26	123	100	44
2004-2011	CL	Count	10	65	13	72	70	64	57	90	74	71
2012	CL	Count		12		12	12	12	11	12	12	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130	LOXA131
2004-2011	DCS	Mean	0.43	0.38	0.72	0.46	0.40	0.37	0.29	0.50	0.37	0.35
2012	DCS	Mean		0.39		0.41	0.45	0.39	0.33	NA	0.40	0.38
2004-2011	DCS	Variance	0.08	0.03	0.11	0.03	0.03	0.03	0.02	NA	0.03	0.02
2012	DCS	Variance		0.03		0.02	0.03	0.02	0.03	NA	0.03	0.03
2004-2011	DCS	25th Percentile	0.29	0.26	0.61	0.37	0.32	0.28	0.20	0.50	0.27	0.27
2012	DCS	25th Percentile		0.30		0.28	0.35	0.28	0.25	NA	0.29	0.29
2004-2011	DCS	Median	0.42	0.37	0.80	0.48	0.42	0.36	0.28	0.50	0.35	0.34
2012	DCS	Median		0.37		0.38	0.40	0.35	0.29	NA	0.36	0.31
2004-2011	DCS	75th Percentile	0.60	0.50	0.92	0.58	0.52	0.49	0.38	0.50	0.46	0.44
2012	DCS	75th Percentile		0.53		0.54	0.62	0.53	0.43	NA	0.49	0.47
2004-2011	DCS	Count	7	78	15	78	76	80	75	1	79	79
2012	DCS	Count		12		12	12	12	12	0	12	12
2004-2011	NA	Mean	61	62	51	16	40	18	12	60	42	30
2012	NA	Mean		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Variance	61	281	351	30	277	15	7	349	305	195
2012	NA	Variance		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	25th Percentile	55	55	43	12	31	16	11	44	26	20
2012	NA	25th Percentile		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Median	59	62	46	15	34	18	13	65	45	30
2012	NA	Median		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	75th Percentile	66	70	47	20	51	21	13	75	55	37
2012	NA	75th Percentile		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Count	5	9	10	12	13	10	7	19	14	13
2012	NA	Count		0		0	0	0	0	0	0	0
2004-2011	SIO2	Mean	16	13	15	6	8	6	4	10	9	7
2012	SIO2	Mean		9		4	7	5	2	7	7	9
2004-2011	SIO2	Variance	22	31	11	13	32	11	6	23	29	28
2012	SIO2	Variance		17		5	8	1	0	3	7	17
2004-2011	SIO2	25th Percentile	15	9	13	2	3	4	3	6	4	2
2012	SIO2	25th Percentile		7		3	5	4	2	6	5	6
2004-2011	SIO2	Median	17	13	15	5	7	6	4	9	8	7
2012	SIO2	Median		9		3	6	5	2	7	8	7
2004-2011	SIO2	75th Percentile	20	17	16	9	12	8	5	12	13	9
2012	SIO2	75th Percentile		10		4	7	6	3	8	9	11
2004-2011	SIO2	Count	5	52	9	53	56	43	30	91	60	55
2012	SIO2	Count		9		8	11	9	6	12	11	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130	LOXA131
2004-2011	SO4	Mean	48.0	13.4	17.3	1.5	8.4	0.5	0.1	27.6	8.6	2.1
2012	SO4	Mean		5.7		1.1	3.7	0.4	0.2	16.2	3.0	1.3
2004-2011	SO4	Variance	612.2	205.8	207.3	7.8	123.5	1.3	0.0	351.9	408.8	15.0
2012	SO4	Variance		35.3		0.8	32.3	0.0	0.0	121.3	6.9	1.6
2004-2011	SO4	25th Percentile	39.9	3.7	10.3	0.4	1.2	0.1	0.0	13.0	1.4	0.5
2012	SO4	25th Percentile		2.1		0.5	1.1	0.3	0.1	6.4	1.1	0.7
2004-2011	SO4	Median	45.3	7.8	13.8	0.5	3.2	0.2	0.1	22.5	2.3	0.8
2012	SO4	Median		2.5		0.7	1.8	0.5	0.1	14.4	1.9	1.1
2004-2011	SO4	75th Percentile	48.6	16.5	18.1	1.0	10.9	0.4	0.2	37.8	6.6	1.6
2012	SO4	75th Percentile		6.2		1.3	3.0	0.5	0.4	24.9	4.2	1.2
2004-2011	SO4	Count	10	66	13	71	71	55	48	90	75	72
2012	SO4	Count		12		12	12	12	11	12	12	11
2004-2011	TDEPTH	Mean	0.21	0.27	0.26	0.30	0.30	0.25	0.20	0.31	0.28	0.27
2012	TDEPTH	Mean		0.30		0.26	0.34	0.30	0.25	0.12	0.31	0.32
2004-2011	TDEPTH	Variance	0.01	0.02	0.03	0.02	0.01	0.02	0.01	NA	0.02	0.02
2012	TDEPTH	Variance		0.02		0.01	0.02	0.02	0.01	NA	0.02	0.02
2004-2011	TDEPTH	25th Percentile	0.14	0.17	0.14	0.19	0.21	0.17	0.12	0.31	0.20	0.18
2012	TDEPTH	25th Percentile		0.22		0.18	0.22	0.20	0.18	0.12	0.24	0.22
2004-2011	TDEPTH	Median	0.15	0.28	0.23	0.30	0.30	0.24	0.17	0.31	0.27	0.26
2012	TDEPTH	Median		0.29		0.24	0.33	0.27	0.20	0.12	0.29	0.25
2004-2011	TDEPTH	75th Percentile	0.29	0.37	0.38	0.41	0.37	0.34	0.26	0.31	0.36	0.34
2012	TDEPTH	75th Percentile		0.39		0.30	0.40	0.37	0.34	0.12	0.38	0.36
2004-2011	TDEPTH	Count	11	74	16	75	73	74	67	1	79	76
2012	TDEPTH	Count		12		12	12	12	11	1	12	11
2004-2011	TDOC	Mean	31	25	24	18	20	20	19	33	23	21
2012	TDOC	Mean		26		20	23	22	25	27	26	27
2004-2011	TDOC	Variance	2	25	15	6	18	16	15	6997	27	25
2012	TDOC	Variance		46		19	22	21	24	50	42	47
2004-2011	TDOC	25th Percentile	30	22	22	17	17	17	16	21	19	18
2012	TDOC	25th Percentile		19		18	22	21	23	25	24	24
2004-2011	TDOC	Median	31	25	23	18	20	20	18	24	21	21
2012	TDOC	Median		29		19	23	23	25	29	27	29
2004-2011	TDOC	75th Percentile	31	28	26	19	24	23	20	29	27	24
2012	TDOC	75th Percentile		30		23	26	26	27	30	30	31
2004-2011	TDOC	Count	5	50	10	53	56	42	30	89	59	54
2012	TDOC	Count		9		8	11	9	6	12	11	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130	LOXA131
2004-2011	TDS	Mean	496	314	338	132	248	105	88	415	259	158
2012	TDS	Mean		229		141	210	96	96	372	231	167
2004-2011	TDS	Variance	2010	19987	19902	2699	13563	869	352	18877	13646	5150
2012	TDS	Variance		14188		7177	10866	623	892	22802	9860	902
2004-2011	TDS	25th Percentile	478	208	279	98	150	85	75	325	166	110
2012	TDS	25th Percentile		159		83	127	74	79	234	165	148
2004-2011	TDS	Median	503	312	303	120	230	110	86	400	230	141
2012	TDS	Median		173		107	165	93	88	321	180	164
2004-2011	TDS	75th Percentile	506	412	331	150	330	124	103	514	343	194
2012	TDS	75th Percentile		315		175	278	108	99	451	316	193
2004-2011	TDS	Count	5	52	10	54	57	43	30	91	60	55
2012	TDS	Count		9		8	11	9	6	12	11	11
2004-2011	TOC	Mean	31	25	24	19	21	20	19	25	23	22
2012	TOC	Mean		26		20	24	23	25	27	26	26
2004-2011	TOC	Variance	3	26	16	7	18	15	17	31	31	26
2012	TOC	Variance		54		20	21	22	31	49	43	50
2004-2011	TOC	25th Percentile	30	21	22	17	16	17	16	21	18	18
2012	TOC	25th Percentile		19		18	23	22	22	25	24	23
2004-2011	TOC	Median	31	25	23	19	21	20	18	24	21	20
2012	TOC	Median		29		20	24	23	24	29	28	29
2004-2011	TOC	75th Percentile	31	29	26	20	24	23	21	29	28	25
2012	TOC	75th Percentile		31		23	26	26	29	32	30	32
2004-2011	TOC	Count	5	50	10	53	56	42	30	90	59	54
2012	TOC	Count		9		8	11	9	6	12	11	11
2004-2011	DO	Mean	0.9	2.1	1.6	2.4	4.7	4.6	5.2	3.8	2.5	4.9
2012	DO	Mean		1.3		1.7	3.0	3.1	4.1	3.8	2.3	4.6
2004-2011	DO	Variance	0.4	2.8	1.4	3.1	42.4	4.7	4.4	4.0	2.3	5.3
2012	DO	Variance		0.5		0.4	2.3	1.7	2.0	2.7	0.8	3.8
2004-2011	DO	25th Percentile	0.5	1.0	0.8	1.2	2.0	3.0	3.9	2.4	1.4	3.4
2012	DO	25th Percentile		1.0		1.2	1.7	2.4	3.3	2.8	1.7	3.3
2004-2011	DO	Median	0.7	1.6	1.1	2.0	3.4	4.3	4.9	3.6	2.4	4.2
2012	DO	Median		1.2		1.4	2.7	3.0	3.7	4.2	2.1	3.6
2004-2011	DO	75th Percentile	1.0	2.4	2.1	3.0	4.8	6.1	6.3	5.4	3.2	6.4
2012	DO	75th Percentile		1.6		2.3	4.1	4.0	4.9	5.0	2.5	5.7
2004-2011	DO	Count	10	63	12	66	66	61	57	86	70	65
2012	DO	Count		12		12	12	12	11	12	12	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130	LOXA131
2004-2011	OPO4	Mean	39	6	4	9	6	8	6	23	9	7
2012	OPO4	Mean		9		6	7	3	0	20	1	8
2004-2011	OPO4	Variance	1629	157	1	488	95	104	41	3211	679	101
2012	OPO4	Variance		171		89	130	50	0	438	2	188
2004-2011	OPO4	25th Percentile	14	3	3	3	2	3	3	4	3	3
2012	OPO4	25th Percentile		0		0	1	0	0	5	0	1
2004-2011	OPO4	Median	22	3	4	3	3	3	4	8	3	3
2012	OPO4	Median		1		1	1	1	0	12	1	3
2004-2011	OPO4	75th Percentile	39	5	5	6	5	7	5	18	5	5
2012	OPO4	75th Percentile		23		6	12	2	1	36	2	3
2004-2011	OPO4	Count	5	44	10	46	48	37	27	83	52	47
2012	OPO4	Count		9		8	11	9	6	12	11	11
2004-2011	PH	Mean	7.0	6.9	7.1	6.7	7.0	6.7	6.5	7.3	6.8	6.9
2012	PH	Mean		6.8		6.6	6.9	6.6	6.3	7.3	6.8	6.9
2004-2011	PH	Variance	0.0	0.1	0.0	0.2	0.2	0.2	0.1	0.4	0.1	0.1
2012	PH	Variance		0.1		0.2	0.2	0.2	0.1	0.1	0.1	0.2
2004-2011	PH	25th Percentile	7.0	6.7	6.9	6.3	6.7	6.4	6.3	7.2	6.7	6.6
2012	PH	25th Percentile		6.5		6.3	6.7	6.3	6.1	7.1	6.7	6.7
2004-2011	PH	Median	7.1	6.9	7.1	6.7	6.9	6.6	6.4	7.3	6.8	6.9
2012	PH	Median		6.8		6.5	6.8	6.5	6.2	7.3	6.8	6.7
2004-2011	PH	75th Percentile	7.1	7.1	7.2	7.0	7.1	6.9	6.7	7.5	7.0	7.1
2012	PH	75th Percentile		6.9		6.9	7.1	6.8	6.5	7.3	6.9	7.0
2004-2011	PH	Count	10	66	13	70	69	63	59	89	74	70
2012	PH	Count		12		12	12	12	11	12	12	11
2004-2011	SPCOND	Mean	777	466	487	196	363	128	111	673	392	209
2012	SPCOND	Mean		339		230	288	116	106	619	368	195
2004-2011	SPCOND	Variance	76255	51187	34917	9962	36371	1226	632	43093	36769	11800
2012	SPCOND	Variance		29467		20149	31236	2255	1214	68440	27444	3429
2004-2011	SPCOND	25th Percentile	666	273	444	136	208	103	91	527	229	117
2012	SPCOND	25th Percentile		226		105	178	80	82	421	248	156
2004-2011	SPCOND	Median	791	444	484	164	309	119	114	652	345	184
2012	SPCOND	Median		258		226	224	105	105	545	290	210
2004-2011	SPCOND	75th Percentile	914	642	497	209	495	150	125	833	523	278
2012	SPCOND	75th Percentile		493		338	381	142	130	738	500	238
2004-2011	SPCOND	Count	11	67	14	70	70	63	57	91	74	70
2012	SPCOND	Count		12		12	12	12	11	12	12	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130	LOXA131
2004-2011	TDP	Mean	46	7	6	17	6	6	6	66	19	6
2012	TDP	Mean		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Variance	1620	2	1	1262	5	2	4	9003	1833	2
2012	TDP	Variance		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	25th Percentile	18	6	5	6	5	6	4	28	6	5
2012	TDP	25th Percentile		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Median	30	7	6	8	6	6	6	38	9	5
2012	TDP	Median		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	75th Percentile	53	8	7	9	8	7	8	44	10	7
2012	TDP	75th Percentile		NA		NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Count	5	9	9	16	16	13	6	23	18	16
2012	TDP	Count		0		0	0	0	0	0	0	0
2004-2011	TEMP	Mean	22	23	24	23	24	25	25	25	24	24
2012	TEMP	Mean		24		23	24	24	26	25	23	24
2004-2011	TEMP	Variance	26	20	19	23	25	25	23	19	25	27
2012	TEMP	Variance		13		20	19	22	15	21	25	31
2004-2011	TEMP	25th Percentile	17	20	21	20	21	22	23	22	21	21
2012	TEMP	25th Percentile		21		21	21	22	22	23	21	22
2004-2011	TEMP	Median	24	23	26	23	24	25	25	25	24	25
2012	TEMP	Median		25		24	25	25	27	27	23	26
2004-2011	TEMP	75th Percentile	26	27	28	27	28	28	29	29	28	28
2012	TEMP	75th Percentile		27		26	27	27	29	29	27	29
2004-2011	TEMP	Count	11	67	14	71	71	65	59	90	74	70
2012	TEMP	Count		12		12	12	12	11	12	12	11
2004-2011	TN	Mean	1.7	1.2	1.4	1.0	1.2	1.2	1.1	1.8	1.3	1.3
2012	TN	Mean		1.2		1.1	1.4	1.4	1.6	1.7	1.4	1.8
2004-2011	TN	Variance	1.0	0.2	0.4	0.1	0.1	0.1	0.2	0.5	0.2	0.2
2012	TN	Variance		0.0		0.0	0.0	0.0	0.0	0.1	0.0	0.0
2004-2011	TN	25th Percentile	1.8	1.0	1.3	0.8	1.0	1.0	0.8	1.4	0.9	1.0
2012	TN	25th Percentile		1.2		1.0	1.3	1.4	1.5	1.5	1.3	1.8
2004-2011	TN	Median	1.9	1.2	1.4	0.9	1.2	1.2	1.0	1.6	1.2	1.2
2012	TN	Median		1.3		1.1	1.3	1.4	1.6	1.5	1.4	1.8
2004-2011	TN	75th Percentile	2.0	1.4	1.6	1.1	1.4	1.4	1.2	2.2	1.6	1.5
2012	TN	75th Percentile		1.4		1.1	1.4	1.4	1.7	1.8	1.5	1.9
2004-2011	TN	Count	5	49	10	51	53	40	29	86	56	53
2012	TN	Count		4		3	6	4	2	7	6	6

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130	LOXA131
2004-2011	TP	Mean	83	13	15	17	10	8	7	64	17	8
2012	TP	Mean		12		15	7	6	6	31	10	8
2004-2011	TP	Variance	2316	66	61	488	34	23	38	4208	634	13
2012	TP	Variance		16		43	4	3	2	88	12	8
2004-2011	TP	25th Percentile	50	9	9	8	6	5	3	33	9	6
2012	TP	25th Percentile		9		10	6	5	5	25	8	6
2004-2011	TP	Median	68	12	13	13	10	7	5	49	12	7
2012	TP	Median		11		13	6	6	6	29	9	7
2004-2011	TP	75th Percentile	111	15	16	17	13	9	8	77	16	9
2012	TP	75th Percentile		12		17	7	7	7	35	13	10
2004-2011	TP	Count	10	67	14	70	69	62	56	90	72	69
2012	TP	Count		12		12	12	12	11	12	12	11
2004-2011	TSS	Mean	14.0	1.9	3.8	2.6	2.1	2.3	3.2	6.9	2.0	2.1
2012	TSS	Mean		19.3		16.5	64.7	22.7	11.2	133.0	62.7	46.9
2004-2011	TSS	Variance	341.6	1.6	50.2	7.7	1.3	1.3	17.8	26.5	1.2	2.9
2012	TSS	Variance		3323.5		2432.1	13265.3	2294.9	1110.0	46349.5	13008.2	6545.2
2004-2011	TSS	25th Percentile	1.6	1.0	1.6	1.6	1.6	1.6	1.6	3.0	1.6	1.6
2012	TSS	25th Percentile		0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1
2004-2011	TSS	Median	1.6	1.6	1.6	2.0	2.0	2.0	2.3	6.0	1.6	1.6
2012	TSS	Median		0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1
2004-2011	TSS	75th Percentile	22.0	2.5	1.6	2.7	2.5	2.6	2.5	9.1	2.5	2.5
2012	TSS	75th Percentile		0.1		0.1	78.0	0.1	0.1	247.8	82.0	76.0
2004-2011	TSS	Count	5	53	10	62	60	52	46	91	65	63
2012	TSS	Count		9		9	11	10	9	12	11	11
2004-2011	DEPTH	Mean	1.00	0.18	0.68	0.18	0.17	0.17	0.14	0.45	0.17	0.16
2012	DEPTH	Mean		0.17		0.13	0.17	0.17	0.12	0.06	0.17	0.18
2004-2011	DEPTH	Variance	0.00	0.03	0.31	0.03	0.03	0.03	0.04	0.02	0.03	0.03
2012	DEPTH	Variance		0.02		0.00	0.00	0.02	0.00	NA	0.01	0.02
2004-2011	DEPTH	25th Percentile	1.00	0.12	0.52	0.10	0.11	0.09	0.07	0.50	0.10	0.10
2012	DEPTH	25th Percentile		0.11		0.09	0.11	0.10	0.08	0.06	0.12	0.11
2004-2011	DEPTH	Median	1.00	0.15	1.00	0.15	0.15	0.13	0.11	0.50	0.14	0.13
2012	DEPTH	Median		0.14		0.12	0.16	0.13	0.10	0.06	0.14	0.12
2004-2011	DEPTH	75th Percentile	1.00	0.19	1.00	0.20	0.17	0.17	0.14	0.50	0.17	0.17
2012	DEPTH	75th Percentile		0.20		0.15	0.20	0.19	0.17	0.06	0.19	0.18
2004-2011	DEPTH	Count	2.0	50.0	3.0	53.0	53.0	48.0	46.0	31.0	56.0	54.0
2012	DEPTH	Count		12.0		12.0	12.0	12.0	11.0	1.0	12.0	11.0

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2011	ALK	Mean	162	117	86	163	126	83	57	17	71	77
2012	ALK	Mean	147	90	78	148	103	80	55	32	73	61
2004-2011	ALK	Variance	1722	1738	1776	1802	3097	1899	1401	57	1350	1176
2012	ALK	Variance	2041	338	490	1362	265	291	685	391	718	852
2004-2011	ALK	25th Percentile	130	93	51	130	75	50	32	13	42	46
2012	ALK	25th Percentile	125	80	71	125	90	69	39	24	56	44
2004-2011	ALK	Median	158	120	81	156	123	72	40	15	58	73
2012	ALK	Median	133	81	80	139	100	74	54	25	63	52
2004-2011	ALK	75th Percentile	190	132	100	187	170	110	85	21	93	100
2012	ALK	75th Percentile	153	91	88	161	113	85	62	30	80	80
2004-2011	ALK	Count	89	19	45	90	34	50	28	19	27	48
2012	ALK	Count	12	4	8	12	8	7	6	5	4	12
2004-2011	CA	Mean	56	38	29	57	41	27	19	7	23	23
2012	CA	Mean	49	30	27	51	36	28	19	11	24	18
2004-2011	CA	Variance	249	302	203	223	327	212	134	4	116	114
2012	CA	Variance	177	67	63	115	54	38	74	33	126	88
2004-2011	CA	25th Percentile	45	29	18	47	26	16	12	6	14	15
2012	CA	25th Percentile	43	26	25	45	29	25	16	9	19	12
2004-2011	CA	Median	54	39	25	54	41	22	14	7	21	20
2012	CA	Median	46	26	27	49	36	26	18	9	20	15
2004-2011	CA	75th Percentile	63	45	38	63	55	36	24	8	29	30
2012	CA	75th Percentile	53	30	30	54	40	29	20	11	25	24
2004-2011	CA	Count	88	20	45	91	34	51	28	19	27	48
2012	CA	Count	12	4	8	12	8	7	6	5	4	12
2004-2011	CL	Mean	102	59	50	108	64	48	32	19	40	41
2012	CL	Mean	114	52	47	124	71	48	32	25	41	38
2004-2011	CL	Variance	1551	935	848	1587	935	765	325	50	447	542
2012	CL	Variance	4766	1194	913	4091	2412	1036	147	28	492	697
2004-2011	CL	25th Percentile	70	31	24	78	43	23	18	14	23	22
2012	CL	25th Percentile	76	26	26	86	28	26	23	23	26	21
2004-2011	CL	Median	100	54	46	110	60	43	24	18	35	37
2012	CL	Median	87	31	29	107	49	29	28	27	30	23
2004-2011	CL	75th Percentile	121	89	74	130	86	71	44	23	52	56
2012	CL	75th Percentile	130	91	76	134	116	81	42	28	56	60
2004-2011	CL	Count	90	46	71	90	56	72	64	51	58	50
2012	CL	Count	12	9	11	12	12	11	10	9	10	12

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2011	DCS	Mean	0.50	0.29	0.38	NA	0.42	0.34	0.27	0.22	0.25	0.66
2012	DCS	Mean	NA	0.33	0.41	NA	0.47	0.37	0.33	0.29	0.31	0.49
2004-2011	DCS	Variance	NA	0.03	0.03	NA	0.04	0.03	0.02	0.01	0.02	0.09
2012	DCS	Variance	NA	0.04	0.04	NA	0.03	0.03	0.03	0.03	0.04	0.02
2004-2011	DCS	25th Percentile	0.50	0.18	0.29	NA	0.31	0.25	0.19	0.16	0.17	0.49
2012	DCS	25th Percentile	NA	0.20	0.29	NA	0.36	0.26	0.24	0.20	0.21	0.40
2004-2011	DCS	Median	0.50	0.26	0.36	NA	0.42	0.34	0.25	0.21	0.23	0.63
2012	DCS	Median	NA	0.25	0.35	NA	0.41	0.31	0.25	0.25	0.24	0.42
2004-2011	DCS	75th Percentile	0.50	0.40	0.48	NA	0.54	0.43	0.35	0.29	0.35	0.80
2012	DCS	75th Percentile	NA	0.48	0.54	NA	0.62	0.47	0.45	0.42	0.44	0.63
2004-2011	DCS	Count	1	64	75	0	64	78	74	72	75	49
2012	DCS	Count	0	11	12	0	12	12	11	10	11	5
2004-2011	NA	Mean	64	46	39	66	48	29	26	13	38	NA
2012	NA	Mean	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Variance	287	347	82	379	365	222	341	16	427	NA
2012	NA	Variance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	25th Percentile	49	40	35	51	36	23	14	10	23	NA
2012	NA	25th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Median	65	45	40	66	45	26	17	13	32	NA
2012	NA	Median	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	75th Percentile	81	47	42	79	46	31	34	16	55	NA
2012	NA	75th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	NA	Count	18	5	10	19	5	12	7	4	6	0
2012	NA	Count	0	0	0	0	0	0	0	0	0	0
2004-2011	SIO2	Mean	10	12	9	10	12	10	10	6	11	10
2012	SIO2	Mean	7	9	10	7	9	11	10	11	14	7
2004-2011	SIO2	Variance	29	26	29	25	41	45	50	16	56	20
2012	SIO2	Variance	3	6	10	4	9	20	38	19	3	20
2004-2011	SIO2	25th Percentile	6	9	6	6	8	4	5	3	4	6
2012	SIO2	25th Percentile	6	8	7	6	8	7	5	12	12	4
2004-2011	SIO2	Median	10	12	8	9	12	9	8	5	11	10
2012	SIO2	Median	7	10	10	7	9	14	12	13	14	6
2004-2011	SIO2	75th Percentile	13	17	13	12	17	14	13	7	16	14
2012	SIO2	75th Percentile	8	10	12	9	11	14	15	13	15	8
2004-2011	SIO2	Count	90	19	45	91	34	51	28	19	27	46
2012	SIO2	Count	12	4	8	12	8	7	6	5	4	12

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2011	SO4	Mean	30.2	8.0	7.7	32.4	11.0	6.7	2.7	0.5	3.3	7.1
2012	SO4	Mean	19.7	3.3	3.3	22.2	4.1	2.9	1.5	0.9	2.5	4.0
2004-2011	SO4	Variance	390.3	120.6	127.6	418.8	238.5	113.2	38.2	0.6	34.2	87.4
2012	SO4	Variance	204.6	9.4	10.4	109.6	26.8	7.5	2.1	1.5	18.8	30.3
2004-2011	SO4	25th Percentile	15.2	1.2	1.2	18.0	1.3	0.9	0.5	0.1	0.7	1.3
2012	SO4	25th Percentile	9.8	1.0	1.1	17.0	1.0	0.9	0.7	0.5	0.8	1.0
2004-2011	SO4	Median	26.5	2.2	2.5	29.8	3.3	1.7	0.8	0.3	1.1	2.7
2012	SO4	Median	16.9	1.8	2.0	22.9	2.4	1.8	1.1	0.5	1.0	1.4
2004-2011	SO4	75th Percentile	40.5	9.1	11.2	41.7	12.3	6.5	1.5	0.6	2.3	8.5
2012	SO4	75th Percentile	27.2	4.8	3.6	27.5	4.9	3.6	1.6	0.7	1.8	4.1
2004-2011	SO4	Count	90	47	72	90	56	73	65	50	59	51
2012	SO4	Count	12	9	11	12	12	11	10	9	10	12
2004-2011	TDEPTH	Mean	0.24	0.18	0.27	0.39	0.25	0.27	0.20	0.17	0.20	0.49
2012	TDEPTH	Mean	0.00	0.26	0.31	0.00	0.30	0.29	0.27	0.24	0.26	0.33
2004-2011	TDEPTH	Variance	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.08
2012	TDEPTH	Variance	NA	0.02	0.02	NA	0.02	0.02	0.02	0.02	0.02	0.02
2004-2011	TDEPTH	25th Percentile	0.21	0.12	0.18	0.34	0.15	0.18	0.13	0.11	0.12	0.31
2012	TDEPTH	25th Percentile	0.00	0.14	0.21	0.00	0.19	0.19	0.18	0.14	0.15	0.24
2004-2011	TDEPTH	Median	0.24	0.16	0.25	0.39	0.22	0.25	0.18	0.16	0.18	0.43
2012	TDEPTH	Median	0.00	0.18	0.28	0.00	0.28	0.25	0.21	0.21	0.18	0.31
2004-2011	TDEPTH	75th Percentile	0.27	0.23	0.36	0.45	0.32	0.34	0.26	0.23	0.26	0.69
2012	TDEPTH	75th Percentile	0.00	0.35	0.37	0.00	0.36	0.31	0.36	0.30	0.35	0.38
2004-2011	TDEPTH	Count	2	53	73	2	60	74	69	63	66	51
2012	TDEPTH	Count	1	9	11	1	12	11	10	9	10	6
2004-2011	TDOC	Mean	33	23	23	33	27	25	23	24	28	20
2012	TDOC	Mean	28	23	26	28	30	28	26	25	23	21
2004-2011	TDOC	Variance	6172	54	35	6303	54	19	27	57	77	15
2012	TDOC	Variance	65	80	59	69	91	87	94	62	35	25
2004-2011	TDOC	25th Percentile	21	18	18	20	21	21	20	20	22	18
2012	TDOC	25th Percentile	25	19	24	22	28	25	25	25	21	17
2004-2011	TDOC	Median	25	25	23	25	27	25	22	23	27	20
2012	TDOC	Median	31	26	26	31	32	28	26	26	24	22
2004-2011	TDOC	75th Percentile	29	28	28	29	29	28	25	25	33	23
2012	TDOC	75th Percentile	32	29	31	33	38	35	29	27	26	25
2004-2011	TDOC	Count	87	18	44	89	33	50	27	19	26	47
2012	TDOC	Count	12	4	8	12	8	7	6	5	4	12

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2011	TDS	Mean	432	318	244	435	335	238	184	112	231	198
2012	TDS	Mean	401	169	233	427	301	226	155	130	169	173
2004-2011	TDS	Variance	17830	13853	12139	20775	20212	13538	9721	1726	9077	9737
2012	TDS	Variance	33821	502	14115	25901	14798	5772	917	673	1587	9986
2004-2011	TDS	25th Percentile	335	252	150	350	213	133	118	87	160	120
2012	TDS	25th Percentile	292	159	154	326	196	170	136	113	141	98
2004-2011	TDS	Median	420	302	231	439	300	220	149	101	218	178
2012	TDS	Median	339	175	185	395	306	186	157	124	155	136
2004-2011	TDS	75th Percentile	515	396	328	515	448	318	233	130	288	258
2012	TDS	75th Percentile	450	185	281	453	414	284	173	155	183	244
2004-2011	TDS	Count	90	19	45	91	34	50	28	19	27	48
2012	TDS	Count	12	4	8	12	8	7	6	5	4	12
2004-2011	TOC	Mean	26	25	24	25	28	25	24	24	29	20
2012	TOC	Mean	28	22	26	28	31	28	26	25	24	21
2004-2011	TOC	Variance	39	50	43	47	64	27	43	54	54	16
2012	TOC	Variance	67	75	59	78	94	87	101	69	39	25
2004-2011	TOC	25th Percentile	21	19	18	21	22	21	20	20	23	17
2012	TOC	25th Percentile	25	19	24	23	28	25	24	24	21	17
2004-2011	TOC	Median	26	25	24	26	28	25	22	23	28	20
2012	TOC	Median	31	24	27	31	33	29	26	25	24	23
2004-2011	TOC	75th Percentile	29	30	28	29	32	28	26	26	33	24
2012	TOC	75th Percentile	34	27	30	34	38	35	31	28	27	25
2004-2011	TOC	Count	88	18	44	90	33	50	27	19	26	47
2012	TOC	Count	12	4	8	12	8	7	6	5	4	12
2004-2011	DO	Mean	4.1	2.3	3.7	4.4	1.8	2.8	4.9	4.8	4.9	2.8
2012	DO	Mean	3.6	2.3	3.5	4.1	1.8	3.4	4.7	3.8	3.0	1.7
2004-2011	DO	Variance	4.5	1.5	4.5	5.0	1.6	2.9	6.0	6.1	4.5	2.9
2012	DO	Variance	2.6	1.2	1.4	2.2	1.7	5.8	5.2	5.0	1.8	1.6
2004-2011	DO	25th Percentile	2.5	1.3	1.9	2.8	0.8	1.5	3.4	3.4	3.4	1.4
2012	DO	25th Percentile	3.1	1.2	2.8	3.0	1.2	2.0	3.0	2.9	2.3	0.8
2004-2011	DO	Median	4.0	2.1	4.0	4.5	1.6	2.5	4.3	4.3	4.6	3.0
2012	DO	Median	3.5	2.8	3.5	4.3	1.4	2.2	4.1	4.0	2.7	1.1
2004-2011	DO	75th Percentile	5.4	3.1	4.9	5.8	2.5	3.6	6.0	6.3	6.3	3.9
2012	DO	75th Percentile	4.9	3.2	4.2	5.1	2.0	4.2	6.1	5.1	3.7	3.0
2004-2011	DO	Count	86	44	67	87	54	69	62	52	56	48
2012	DO	Count	12	9	11	12	12	11	10	9	10	12

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2011	OPO4	Mean	25	28	13	25	13	6	6	5	7	6
2012	OPO4	Mean	20	15	12	19	11	9	13	8	24	1
2004-2011	OPO4	Variance	4182	3366	970	4634	1285	74	60	44	61	82
2012	OPO4	Variance	375	329	229	516	187	189	347	221	295	1
2004-2011	OPO4	25th Percentile	3	3	2	3	2	3	3	3	3	3
2012	OPO4	25th Percentile	6	1	1	4	1	0	0	2	18	0
2004-2011	OPO4	Median	7	6	4	6	3	3	3	3	5	3
2012	OPO4	Median	12	11	3	7	3	1	1	2	24	1
2004-2011	OPO4	75th Percentile	24	30	8	14	5	6	6	5	7	4
2012	OPO4	75th Percentile	33	25	27	33	23	16	27	3	30	1
2004-2011	OPO4	Count	81	19	40	77	31	41	23	15	22	42
2012	OPO4	Count	12	4	8	12	8	7	6	5	4	12
2004-2011	PH	Mean	7.4	6.8	7.0	7.5	6.9	6.8	6.9	6.7	6.9	6.8
2012	PH	Mean	7.3	6.8	7.0	7.3	6.8	6.9	7.0	6.4	6.8	6.8
2004-2011	PH	Variance	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
2012	PH	Variance	0.1	0.1	0.1	0.1	0.0	0.1	0.3	1.0	0.1	0.2
2004-2011	PH	25th Percentile	7.2	6.7	6.8	7.3	6.7	6.6	6.6	6.4	6.7	6.5
2012	PH	25th Percentile	7.2	6.6	6.8	7.3	6.8	6.7	6.6	6.3	6.7	6.4
2004-2011	PH	Median	7.4	6.9	6.9	7.5	6.9	6.8	6.8	6.6	6.8	6.8
2012	PH	Median	7.3	6.8	6.9	7.4	6.8	6.9	7.0	6.6	6.8	6.7
2004-2011	PH	75th Percentile	7.6	7.0	7.1	7.7	7.1	6.9	7.2	7.1	7.1	7.1
2012	PH	75th Percentile	7.4	7.0	7.0	7.5	6.9	7.1	7.1	6.8	6.9	7.0
2004-2011	PH	Count	89	47	71	90	57	73	65	54	59	50
2012	PH	Count	12	9	11	12	12	11	10	9	10	12
2004-2011	SPCOND	Mean	704	412	348	727	451	322	207	110	255	299
2012	SPCOND	Mean	685	341	300	729	430	298	201	138	242	253
2004-2011	SPCOND	Variance	39901	34526	31027	38492	40211	30282	14840	1123	16205	23396
2012	SPCOND	Variance	96177	16179	12780	76274	38087	13831	2782	2247	9918	22814
2004-2011	SPCOND	25th Percentile	553	230	176	560	278	172	127	86	157	174
2012	SPCOND	25th Percentile	485	244	229	545	263	223	187	121	179	155
2004-2011	SPCOND	Median	683	418	340	739	411	276	152	103	221	260
2012	SPCOND	Median	603	313	250	654	371	245	202	142	212	181
2004-2011	SPCOND	75th Percentile	827	550	481	855	610	441	243	127	311	396
2012	SPCOND	75th Percentile	765	439	387	767	601	387	233	148	334	368
2004-2011	SPCOND	Count	91	48	71	90	56	71	63	52	58	50
2012	SPCOND	Count	12	9	11	12	12	11	10	9	10	12

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2011	TDP	Mean	74	84	27	71	62	11	7	7	11	NA
2012	TDP	Mean	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Variance	12304	10070	3148	13998	6437	60	5	1	33	NA
2012	TDP	Variance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	25th Percentile	22	18	7	19	18	7	6	7	7	NA
2012	TDP	25th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Median	41	55	11	38	20	9	6	8	9	NA
2012	TDP	Median	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	75th Percentile	56	79	14	65	55	10	8	8	14	NA
2012	TDP	75th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	TDP	Count	22	5	11	24	5	15	8	4	7	0
2012	TDP	Count	0	0	0	0	0	0	0	0	0	0
2004-2011	TEMP	Mean	25	23	24	25	23	24	24	24	24	23
2012	TEMP	Mean	25	24	24	25	23	24	24	26	24	24
2004-2011	TEMP	Variance	19	21	25	19	22	24	28	29	26	18
2012	TEMP	Variance	20	26	29	19	22	26	26	15	23	11
2004-2011	TEMP	25th Percentile	23	19	21	22	20	20	20	20	20	20
2012	TEMP	25th Percentile	22	22	22	23	21	22	21	25	21	21
2004-2011	TEMP	Median	26	23	25	25	22	24	25	26	24	22
2012	TEMP	Median	26	27	27	27	24	26	26	27	27	25
2004-2011	TEMP	75th Percentile	29	27	28	29	27	28	28	28	28	27
2012	TEMP	75th Percentile	28	28	28	28	27	28	28	28	28	26
2004-2011	TEMP	Count	90	47	71	90	56	72	64	53	58	49
2012	TEMP	Count	12	9	11	12	12	11	10	9	10	12
2004-2011	TN	Mean	1.8	1.8	1.4	1.8	1.6	1.4	1.3	1.3	1.4	1.1
2012	TN	Mean	1.8	NA	1.6	1.7	2.0	1.9	2.3	NA	NA	2.4
2004-2011	TN	Variance	0.6	0.5	0.2	0.4	0.4	0.1	0.2	0.4	0.3	0.1
2012	TN	Variance	0.1	NA	0.0	0.1	0.0	0.0	NA	NA	NA	9.5
2004-2011	TN	25th Percentile	1.3	1.3	1.0	1.4	1.2	1.2	1.1	1.1	1.0	1.0
2012	TN	25th Percentile	1.5	NA	1.5	1.5	1.9	1.9	2.3	NA	NA	1.2
2004-2011	TN	Median	1.7	1.7	1.3	1.8	1.5	1.4	1.3	1.3	1.4	1.1
2012	TN	Median	1.6	NA	1.6	1.7	2.0	1.9	2.3	NA	NA	1.3
2004-2011	TN	75th Percentile	2.1	1.9	1.6	2.1	1.9	1.6	1.5	1.4	1.8	1.3
2012	TN	75th Percentile	1.9	NA	1.6	2.0	2.1	1.9	2.3	NA	NA	1.4
2004-2011	TN	Count	84	17	43	85	33	48	28	19	27	41
2012	TN	Count	7	0	3	7	4	3	1	0	0	7

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2011	TP	Mean	64	51	18	62	32	14	9	8	13	13
2012	TP	Mean	31	18	10	29	20	13	7	8	10	11
2004-2011	TP	Variance	4926	4098	678	5535	1397	104	42	13	82	91
2012	TP	Variance	104	39	18	73	214	18	10	16	10	8
2004-2011	TP	25th Percentile	35	19	9	31	15	9	6	5	9	7
2012	TP	25th Percentile	26	15	8	25	12	10	6	6	7	10
2004-2011	TP	Median	48	28	12	46	21	11	8	7	11	10
2012	TP	Median	28	17	9	28	15	12	7	7	10	12
2004-2011	TP	75th Percentile	74	45	18	72	30	16	10	9	13	15
2012	TP	75th Percentile	34	23	10	31	20	16	7	10	12	13
2004-2011	TP	Count	89	47	71	91	57	73	63	53	58	51
2012	TP	Count	12	9	11	12	12	11	10	9	10	12
2004-2011	TSS	Mean	7.4	3.7	2.6	6.2	3.0	2.1	2.6	2.8	2.4	3.5
2012	TSS	Mean	138.3	0.1	29.7	147.8	44.5	32.2	0.1	0.1	1.3	52.7
2004-2011	TSS	Variance	62.1	9.0	3.0	20.3	4.7	1.3	4.5	2.3	1.1	86.0
2012	TSS	Variance	51691.6	0.0	7918.0	58018.4	17280.1	9276.9	0.0	0.0	10.2	7069.7
2004-2011	TSS	25th Percentile	3.0	2.5	1.6	2.5	1.6	1.6	1.6	2.0	1.6	1.6
2012	TSS	25th Percentile	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2004-2011	TSS	Median	5.0	2.5	2.5	5.0	2.5	2.0	2.0	2.5	2.5	2.3
2012	TSS	Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2004-2011	TSS	75th Percentile	8.0	5.0	3.0	8.0	4.0	2.5	2.5	3.0	2.5	2.6
2012	TSS	75th Percentile	252.0	0.1	0.1	297.0	0.1	0.1	0.1	0.1	0.1	105.0
2004-2011	TSS	Count	91	41	57	90	45	60	49	42	45	48
2012	TSS	Count	12	7	9	12	9	9	8	6	7	12
2004-2011	DEPTH	Mean	0.46	0.14	0.17	0.45	0.17	0.17	0.14	0.13	0.15	0.29
2012	DEPTH	Mean	0.00	0.15	0.18	0.00	0.17	0.17	0.16	0.14	0.12	0.17
2004-2011	DEPTH	Variance	0.02	0.05	0.03	0.02	0.04	0.03	0.03	0.04	0.04	0.05
2012	DEPTH	Variance	NA	0.01	0.02	NA	0.02	0.02	0.02	0.01	0.01	0.00
2004-2011	DEPTH	25th Percentile	0.50	0.06	0.09	0.50	0.09	0.09	0.07	0.07	0.07	0.16
2012	DEPTH	25th Percentile	0.00	0.07	0.10	0.00	0.09	0.09	0.08	0.07	0.07	0.12
2004-2011	DEPTH	Median	0.50	0.08	0.14	0.50	0.11	0.13	0.09	0.08	0.10	0.22
2012	DEPTH	Median	0.00	0.09	0.14	0.00	0.14	0.12	0.10	0.10	0.09	0.16
2004-2011	DEPTH	75th Percentile	0.50	0.12	0.18	0.50	0.17	0.18	0.14	0.12	0.14	0.37
2012	DEPTH	75th Percentile	0.00	0.17	0.18	0.00	0.19	0.16	0.18	0.15	0.17	0.19
2004-2011	DEPTH	Count	30.0	37.0	52.0	28.0	47.0	56.0	51.0	44.0	46.0	50.0
2012	DEPTH	Count	1.0	9.0	11.0	1.0	12.0	11.0	9.0	9.0	10.0	6.0

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2011	ALK	Mean	42	12	44	16	43	87	43	9	81	9
2012	ALK	Mean	NA	17	38	20	49	63	41	NA	60	NA
2004-2011	ALK	Variance	200	14	267	24	358	1248	507	2	954	5
2012	ALK	Variance	NA	29	109	25	303	787	185	NA	111	NA
2004-2011	ALK	25th Percentile	30	9	33	13	32	62	28	8	59	8
2012	ALK	25th Percentile	NA	13	29	16	35	39	30	NA	55	NA
2004-2011	ALK	Median	37	11	41	15	39	84	36	10	74	8
2012	ALK	Median	NA	15	42	22	52	66	41	NA	59	NA
2004-2011	ALK	75th Percentile	48	14	53	21	47	115	49	10	100	10
2012	ALK	75th Percentile	NA	21	43	23	59	81	48	NA	65	NA
2004-2011	ALK	Count	36	65	95	69	88	89	85	10	51	15
2012	ALK	Count	0	7	7	6	7	7	7	0	3	0
2004-2011	CA	Mean	12	7	12	8	16	26	14	4	25	5
2012	CA	Mean	NA	9	12	10	18	19	14	NA	24	NA
2004-2011	CA	Variance	18	3	19	4	55	116	50	0	84	1
2012	CA	Variance	NA	8	12	5	35	84	22	NA	23	NA
2004-2011	CA	25th Percentile	9	5	9	7	11	18	9	4	19	4
2012	CA	25th Percentile	NA	7	9	9	13	12	10	NA	22	NA
2004-2011	CA	Median	10	6	11	8	14	26	12	4	22	5
2012	CA	Median	NA	10	12	11	19	18	15	NA	25	NA
2004-2011	CA	75th Percentile	15	8	15	9	17	34	16	5	32	6
2012	CA	75th Percentile	NA	11	13	11	21	24	15	NA	26	NA
2004-2011	CA	Count	36	65	94	69	88	88	84	10	52	14
2012	CA	Count	0	7	7	6	7	7	7	0	3	0
2004-2011	CL	Mean	23	21	27	21	33	51	31	20	48	21
2012	CL	Mean	38	30	32	30	62	50	48	27	64	27
2004-2011	CL	Variance	152	47	120	29	429	635	427	28	497	37
2012	CL	Variance	490	129	153	58	708	750	420	45	834	49
2004-2011	CL	25th Percentile	14	16	19	16	21	31	18	16	30	15
2012	CL	25th Percentile	24	20	21	24	40	26	31	24	40	23
2004-2011	CL	Median	19	20	25	20	26	45	24	20	46	20
2012	CL	Median	28	37	34	32	78	53	57	27	75	25
2004-2011	CL	75th Percentile	27	25	32	23	35	73	35	23	65	24
2012	CL	75th Percentile	55	38	40	34	81	68	61	30	90	29
2004-2011	CL	Count	67	87	95	80	90	91	88	43	76	50
2012	CL	Count	6	7	7	7	7	7	7	4	7	5

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2011	DCS	Mean	0.33	0.52	0.83	0.47	0.66	0.92	0.76	0.25	0.38	0.28
2012	DCS	Mean	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	DCS	Variance	0.01	0.02	0.03	0.02	0.03	0.04	0.03	0.01	0.02	0.01
2012	DCS	Variance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	DCS	25th Percentile	0.25	0.42	0.73	0.38	0.55	0.78	0.62	0.20	0.28	0.23
2012	DCS	25th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	DCS	Median	0.31	0.52	0.88	0.47	0.67	0.95	0.78	0.23	0.37	0.27
2012	DCS	Median	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	DCS	75th Percentile	0.40	0.61	0.95	0.56	0.77	1.06	0.91	0.27	0.47	0.32
2012	DCS	75th Percentile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2011	DCS	Count	67	77	80	72	77	75	76	50	70	53
2012	DCS	Count	0	0	0	0	0	0	0	0	0	0
2004-2011	NA	Mean	17	11	18	11	21	35	20	10	33	12
2012	NA	Mean	NA	16	19	16	36	32	28	NA	40	NA
2004-2011	NA	Variance	73	9	52	8	175	285	193	2	171	12
2012	NA	Variance	NA	28	53	11	234	309	153	NA	161	NA
2004-2011	NA	25th Percentile	11	9	13	10	14	21	12	9	21	9
2012	NA	25th Percentile	NA	12	14	15	23	17	18	NA	34	NA
2004-2011	NA	Median	14	11	16	11	17	31	16	10	30	12
2012	NA	Median	NA	18	20	17	43	34	32	NA	42	NA
2004-2011	NA	75th Percentile	21	14	21	13	22	49	23	10	42	14
2012	NA	75th Percentile	NA	20	23	18	45	43	34	NA	47	NA
2004-2011	NA	Count	36	64	94	68	87	87	83	10	52	14
2012	NA	Count	0	7	7	6	7	7	7	0	3	0
2004-2011	SIO2	Mean	7	3	7	4	5	8	5	3	9	4
2012	SIO2	Mean	NA	1	5	2	3	6	4	NA	7	NA
2004-2011	SIO2	Variance	16	2	10	5	12	29	13	1	26	4
2012	SIO2	Variance	NA	1	8	0	4	25	9	NA	9	NA
2004-2011	SIO2	25th Percentile	4	2	4	3	2	4	2	3	5	2
2012	SIO2	25th Percentile	NA	1	3	2	2	2	2	NA	6	NA
2004-2011	SIO2	Median	7	3	6	3	4	7	4	3	8	4
2012	SIO2	Median	NA	1	4	2	3	4	4	NA	6	NA
2004-2011	SIO2	75th Percentile	10	4	9	5	7	11	7	4	13	5
2012	SIO2	75th Percentile	NA	2	6	2	3	8	5	NA	8	NA
2004-2011	SIO2	Count	36	64	94	69	87	88	84	10	52	15
2012	SIO2	Count	0	7	7	6	7	7	7	0	3	0

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2011	SO4	Mean	1.3	0.1	0.9	0.1	3.9	12.7	2.7	0.1	4.4	0.1
2012	SO4	Mean	0.6	0.1	0.8	0.1	2.8	8.2	2.2	0.1	3.1	0.1
2004-2011	SO4	Variance	2.0	0.0	1.2	0.0	81.2	113.7	32.9	0.0	67.4	0.0
2012	SO4	Variance	0.3	0.0	0.5	0.0	6.9	72.8	8.7	0.0	10.0	0.0
2004-2011	SO4	25th Percentile	0.4	0.1	0.2	0.1	0.4	3.6	0.2	0.1	0.9	0.1
2012	SO4	25th Percentile	0.4	0.1	0.5	0.1	1.4	2.2	0.8	0.1	1.1	0.1
2004-2011	SO4	Median	0.9	0.1	0.6	0.1	1.1	9.3	0.8	0.1	1.3	0.1
2012	SO4	Median	0.5	0.1	0.6	0.1	2.3	5.2	1.2	0.1	2.4	0.1
2004-2011	SO4	75th Percentile	1.8	0.1	1.2	0.1	2.8	19.2	2.0	0.1	3.4	0.1
2012	SO4	75th Percentile	1.0	0.1	0.9	0.1	2.5	10.9	1.9	0.1	3.5	0.1
2004-2011	SO4	Count	68	87	95	80	89	91	87	43	76	50
2012	SO4	Count	6	7	7	7	7	7	7	4	7	5
2004-2011	TDEPTH	Mean	0.21	0.32	0.62	0.35	0.50	0.67	0.53	0.15	0.26	0.17
2012	TDEPTH	Mean	0.17	0.45	0.60	0.22	0.61	0.89	0.79	0.18	0.29	0.18
2004-2011	TDEPTH	Variance	0.01	0.03	0.05	0.03	0.03	0.06	0.04	0.00	0.01	0.00
2012	TDEPTH	Variance	0.00	NA	NA	0.04	NA	NA	NA	0.00	NA	0.00
2004-2011	TDEPTH	25th Percentile	0.14	0.17	0.49	0.24	0.35	0.52	0.40	0.11	0.18	0.14
2012	TDEPTH	25th Percentile	0.15	0.45	0.60	0.15	0.61	0.89	0.79	0.17	0.29	0.18
2004-2011	TDEPTH	Median	0.19	0.28	0.65	0.33	0.52	0.70	0.54	0.15	0.25	0.17
2012	TDEPTH	Median	0.17	0.45	0.60	0.22	0.61	0.89	0.79	0.18	0.29	0.18
2004-2011	TDEPTH	75th Percentile	0.29	0.44	0.76	0.45	0.63	0.81	0.65	0.18	0.31	0.20
2012	TDEPTH	75th Percentile	0.18	0.45	0.60	0.28	0.61	0.89	0.79	0.18	0.29	0.19
2004-2011	TDEPTH	Count	77	96	98	85	93	95	91	60	79	60
2012	TDEPTH	Count	2	1	1	2	1	1	1	2	1	2
2004-2011	TDOC	Mean	18	19	17	18	17	19	16	22	27	22
2012	TDOC	Mean	NA	24	18	23	19	18	17	NA	39	NA
2004-2011	TDOC	Variance	11	13	13	13	19	18	14	9	22	17
2012	TDOC	Variance	NA	45	9	26	8	14	8	NA	31	NA
2004-2011	TDOC	25th Percentile	15	16	15	16	15	17	14	21	24	19
2012	TDOC	25th Percentile	NA	18	15	20	17	15	15	NA	36	NA
2004-2011	TDOC	Median	18	19	16	18	16	18	16	22	26	23
2012	TDOC	Median	NA	27	19	26	20	20	18	NA	37	NA
2004-2011	TDOC	75th Percentile	19	21	18	19	18	22	18	23	29	25
2012	TDOC	75th Percentile	NA	29	20	27	20	20	20	NA	41	NA
2004-2011	TDOC	Count	36	65	94	69	87	87	85	10	52	15
2012	TDOC	Count	0	7	7	6	7	7	7	0	3	0

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2011	TDS	Mean	142	95	129	97	143	242	136	88	240	96
2012	TDS	Mean	NA	123	135	123	191	199	160	NA	246	NA
2004-2011	TDS	Variance	3053	930	2157	703	6175	10253	6072	479	6366	1129
2012	TDS	Variance	NA	2972	2340	864	5556	10924	4835	NA	2812	NA
2004-2011	TDS	25th Percentile	92	74	95	79	95	164	88	81	186	79
2012	TDS	25th Percentile	NA	85	104	98	128	110	98	NA	220	NA
2004-2011	TDS	Median	140	90	123	93	131	221	112	87	230	101
2012	TDS	Median	NA	124	130	128	222	208	180	NA	248	NA
2004-2011	TDS	75th Percentile	178	109	161	110	156	322	160	103	297	112
2012	TDS	75th Percentile	NA	172	162	140	242	274	215	NA	273	NA
2004-2011	TDS	Count	33	65	95	69	88	89	85	10	51	15
2012	TDS	Count	0	7	7	6	7	7	7	0	3	0
2004-2011	TOC	Mean	16	18	16	17	17	19	16	17	25	19
2012	TOC	Mean	NA	24	18	23	19	18	17	NA	39	NA
2004-2011	TOC	Variance	31	29	21	27	30	27	24	109	62	89
2012	TOC	Variance	NA	44	9	26	8	15	9	NA	35	NA
2004-2011	TOC	25th Percentile	15	16	14	16	15	16	14	13	24	16
2012	TOC	25th Percentile	NA	17	15	20	17	15	15	NA	36	NA
2004-2011	TOC	Median	17	18	16	18	16	18	16	21	26	22
2012	TOC	Median	NA	27	19	26	20	20	18	NA	38	NA
2004-2011	TOC	75th Percentile	19	21	18	20	19	22	18	24	30	25
2012	TOC	75th Percentile	NA	29	20	27	21	21	20	NA	42	NA
2004-2011	TOC	Count	39	65	94	69	84	85	82	12	53	18
2012	TOC	Count	0	7	7	6	7	7	7	0	3	0
2004-2011	DO	Mean	4.4	4.1	4.6	4.6	4.1	4.6	2.8	4.5	4.1	4.8
2012	DO	Mean	3.7	4.2	4.7	5.2	4.9	4.7	2.9	5.5	3.7	4.0
2004-2011	DO	Variance	3.4	4.6	3.7	3.9	2.8	3.8	2.8	3.7	3.7	2.6
2012	DO	Variance	2.4	1.5	2.8	4.5	2.9	1.9	1.8	3.0	2.4	2.2
2004-2011	DO	25th Percentile	3.1	2.2	2.9	3.2	2.6	3.0	1.4	3.1	2.7	3.6
2012	DO	25th Percentile	2.6	3.2	3.4	4.0	4.0	3.5	2.0	4.6	2.5	2.9
2004-2011	DO	Median	3.9	3.9	4.5	4.5	4.2	4.7	2.6	3.8	3.8	4.5
2012	DO	Median	3.4	4.0	5.2	5.4	5.0	5.3	2.7	5.5	2.8	3.6
2004-2011	DO	75th Percentile	5.3	5.5	6.2	6.1	5.4	6.0	3.8	5.9	5.2	6.0
2012	DO	75th Percentile	4.1	4.9	6.0	6.8	6.3	5.7	3.6	6.4	5.0	5.6
2004-2011	DO	Count	65	90	94	80	89	91	88	46	71	48
2012	DO	Count	6	6	6	6	6	6	6	4	7	5

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2011	OPO4	Mean	2	3	3	2	2	3	2	4	3	4
2012	OPO4	Mean	NA	1	1	1	1	1	1	NA	1	NA
2004-2011	OPO4	Variance	1	2	15	2	2	6	1	8	17	7
2012	OPO4	Variance	NA	0	0	0	0	0	0	NA	0	NA
2004-2011	OPO4	25th Percentile	2	1	1	1	1	1	1	2	1	2
2012	OPO4	25th Percentile	NA	1	1	1	1	1	1	NA	1	NA
2004-2011	OPO4	Median	3	3	3	3	3	3	3	3	3	3
2012	OPO4	Median	NA	1	1	1	1	1	1	NA	1	NA
2004-2011	OPO4	75th Percentile	3	3	3	3	3	3	3	3	3	5
2012	OPO4	75th Percentile	NA	1	1	1	1	1	1	NA	2	NA
2004-2011	OPO4	Count	35	62	91	66	85	87	83	11	52	14
2012	OPO4	Count	0	7	7	6	7	7	7	0	3	0
2004-2011	PH	Mean	6.6	6.4	6.8	6.4	6.7	7.0	6.5	6.4	6.7	6.3
2012	PH	Mean	6.7	6.4	6.9	6.7	6.9	7.0	6.6	5.9	6.6	6.0
2004-2011	PH	Variance	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.2
2012	PH	Variance	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.4	0.1	0.4
2004-2011	PH	25th Percentile	6.5	6.1	6.6	6.2	6.5	6.8	6.4	6.1	6.5	6.1
2012	PH	25th Percentile	6.4	6.2	6.7	6.6	6.8	7.0	6.5	5.6	6.4	5.9
2004-2011	PH	Median	6.6	6.3	6.8	6.4	6.7	7.1	6.5	6.3	6.7	6.2
2012	PH	Median	6.6	6.4	6.8	6.6	7.0	7.1	6.6	6.0	6.6	6.0
2004-2011	PH	75th Percentile	6.8	6.5	7.0	6.6	6.8	7.3	6.7	6.7	6.9	6.4
2012	PH	75th Percentile	6.7	6.4	6.9	6.6	7.0	7.1	6.6	6.3	6.7	6.0
2004-2011	PH	Count	69	90	95	80	90	92	89	49	76	50
2012	PH	Count	6	6	6	6	6	6	6	4	6	5
2004-2011	SPCOND	Mean	163	115	187	114	219	380	203	111	334	104
2012	SPCOND	Mean	223	140	191	148	320	316	255	130	335	131
2004-2011	SPCOND	Variance	5577	1269	4560	690	15143	27734	14977	627	21480	452
2012	SPCOND	Variance	8145	2587	4099	1384	15979	24688	9986	762	16841	662
2004-2011	SPCOND	25th Percentile	113	90	137	99	145	247	126	90	227	88
2012	SPCOND	25th Percentile	160	97	138	123	215	182	171	117	247	113
2004-2011	SPCOND	Median	134	110	171	110	185	331	166	108	293	103
2012	SPCOND	Median	205	147	210	148	372	329	279	133	326	132
2004-2011	SPCOND	75th Percentile	193	136	225	128	221	528	231	131	433	117
2012	SPCOND	75th Percentile	299	179	229	175	404	414	310	146	427	134
2004-2011	SPCOND	Count	66	79	87	72	82	87	83	49	72	49
2012	SPCOND	Count	6	6	7	6	7	7	7	4	6	5

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2011	TDP	Mean	4	4	96	4	4	4	4	5	6	6
2012	TDP	Mean	NA	3	3	3	3	3	4	NA	6	NA
2004-2011	TDP	Variance	2	2	740013	2	3	2	2	2	6	4
2012	TDP	Variance	NA	1	0	1	1	1	0	NA	0	NA
2004-2011	TDP	25th Percentile	4	3	3	3	3	3	4	5	4	5
2012	TDP	25th Percentile	NA	3	3	3	3	2	3	NA	6	NA
2004-2011	TDP	Median	5	4	4	4	4	4	4	5	6	5
2012	TDP	Median	NA	4	3	4	3	2	4	NA	6	NA
2004-2011	TDP	75th Percentile	5	5	6	6	5	5	5	5	7	7
2012	TDP	75th Percentile	NA	4	3	4	4	3	4	NA	6	NA
2004-2011	TDP	Count	35	61	89	67	83	83	81	10	49	15
2012	TDP	Count	0	7	7	6	7	7	7	0	3	0
2004-2011	TEMP	Mean	23	23	24	23	24	24	23	23	23	23
2012	TEMP	Mean	23	23	23	23	23	24	23	23	23	23
2004-2011	TEMP	Variance	26	21	21	21	20	20	19	25	26	27
2012	TEMP	Variance	59	27	37	36	34	33	31	121	38	87
2004-2011	TEMP	25th Percentile	19	20	21	21	21	21	20	21	19	20
2012	TEMP	25th Percentile	23	21	21	22	21	21	21	22	20	21
2004-2011	TEMP	Median	23	23	25	23	24	25	24	24	23	24
2012	TEMP	Median	27	24	26	25	25	25	25	28	24	27
2004-2011	TEMP	75th Percentile	27	27	28	27	28	28	27	28	28	28
2012	TEMP	75th Percentile	28	26	28	28	27	28	27	29	28	29
2004-2011	TEMP	Count	70	92	96	82	90	93	90	52	79	53
2012	TEMP	Count	6	7	7	7	7	7	7	4	7	5
2004-2011	TN	Mean	1.1	1.2	1.2	1.2	1.0	1.3	0.9	1.4	1.4	1.5
2012	TN	Mean	NA	1.4	1.0	1.4	1.0	1.2	0.9	NA	1.8	NA
2004-2011	TN	Variance	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.6	0.1	0.1
2012	TN	Variance	NA	0.1	0.0	0.1	0.0	0.0	0.0	NA	0.0	NA
2004-2011	TN	25th Percentile	0.9	1.0	0.9	1.0	0.8	1.1	0.8	1.3	1.1	1.3
2012	TN	25th Percentile	NA	1.1	0.9	1.2	0.9	1.1	0.8	NA	1.7	NA
2004-2011	TN	Median	1.1	1.1	1.0	1.1	0.9	1.3	0.9	1.4	1.3	1.4
2012	TN	Median	NA	1.4	1.0	1.4	1.0	1.3	0.9	NA	1.8	NA
2004-2011	TN	75th Percentile	1.2	1.3	1.2	1.3	1.1	1.4	1.0	1.5	1.5	1.6
2012	TN	75th Percentile	NA	1.7	1.1	1.6	1.0	1.3	1.0	NA	1.9	NA
2004-2011	TN	Count	30	56	75	55	71	69	66	11	41	14
2012	TN	Count	0	6	6	5	6	6	6	0	2	0

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2011	TP	Mean	8	8	9	7	7	7	8	10	11	9
2012	TP	Mean	8	7	6	7	6	6	7	6	9	7
2004-2011	TP	Variance	8	10	33	4	5	14	6	32	49	12
2012	TP	Variance	4	1	1	0	1	1	1	6	3	2
2004-2011	TP	25th Percentile	7	6	6	6	6	6	6	7	8	7
2012	TP	25th Percentile	6	7	6	7	6	5	7	5	8	6
2004-2011	TP	Median	8	7	7	7	7	7	7	9	9	8
2012	TP	Median	8	7	6	7	6	6	7	5	9	7
2004-2011	TP	75th Percentile	10	8	9	9	8	8	9	10	12	10
2012	TP	75th Percentile	9	7	6	7	7	6	8	6	10	9
2004-2011	TP	Count	69	92	95	81	90	91	89	50	74	51
2012	TP	Count	6	7	7	7	7	7	7	4	7	5
2004-2011	TSS	Mean	2.5	2.0	3.0	1.8	1.8	1.6	1.7	2.7	2.5	4.6
2012	TSS	Mean	NA	99.6	109.9	100.9	150.8	149.9	125.6	NA	163.8	NA
2004-2011	TSS	Variance	11.9	2.3	89.4	1.5	0.6	0.2	0.3	1.8	7.3	44.4
2012	TSS	Variance	NA	4487.6	4296.7	3206.6	8274.0	10915.4	6578.6	NA	22573.1	NA
2004-2011	TSS	25th Percentile	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.6
2012	TSS	25th Percentile	NA	56.0	79.0	88.5	98.0	89.0	78.0	NA	96.8	NA
2004-2011	TSS	Median	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.0	1.6	1.6
2012	TSS	Median	NA	102.0	122.0	106.0	152.0	114.0	112.0	NA	192.0	NA
2004-2011	TSS	75th Percentile	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.0	2.0	3.3
2012	TSS	75th Percentile	NA	151.0	139.0	137.0	232.0	240.0	191.0	NA	245.0	NA
2004-2011	TSS	Count	37	65	95	69	88	89	84	10	52	16
2012	TSS	Count	0	7	7	6	7	7	7	0	3	0
2004-2011	DEPTH	Mean	0.12	0.18	0.32	0.18	0.26	0.34	0.27	0.11	0.14	0.10
2012	DEPTH	Mean	0.11	0.28	0.51	0.30	0.43	0.55	0.42	0.10	0.18	0.11
2004-2011	DEPTH	Variance	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
2012	DEPTH	Variance	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.00
2004-2011	DEPTH	25th Percentile	0.08	0.10	0.25	0.12	0.21	0.26	0.21	0.06	0.09	0.08
2012	DEPTH	25th Percentile	0.09	0.24	0.49	0.25	0.39	0.48	0.33	0.05	0.15	0.07
2004-2011	DEPTH	Median	0.11	0.16	0.33	0.17	0.26	0.35	0.28	0.08	0.13	0.09
2012	DEPTH	Median	0.10	0.27	0.52	0.32	0.43	0.55	0.39	0.08	0.15	0.10
2004-2011	DEPTH	75th Percentile	0.15	0.23	0.39	0.23	0.32	0.41	0.33	0.10	0.16	0.11
2012	DEPTH	75th Percentile	0.15	0.31	0.58	0.35	0.48	0.62	0.50	0.14	0.21	0.16
2004-2011	DEPTH	Count	72.0	97.0	97.0	83.0	92.0	96.0	91.0	55.0	76.0	55.0
2012	DEPTH	Count	7.0	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	6.0

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2011	ALK	Mean	55	15	11	16
2012	ALK	Mean	68	16	13	16
2004-2011	ALK	Variance	487	63	14	22
2012	ALK	Variance	353	17	0	NA
2004-2011	ALK	25th Percentile	38	11	8	13
2012	ALK	25th Percentile	66	13	13	16
2004-2011	ALK	Median	51	13	10	15
2012	ALK	Median	68	16	13	16
2004-2011	ALK	75th Percentile	64	15	12	19
2012	ALK	75th Percentile	68	17	13	16
2004-2011	ALK	Count	67	74	81	36
2012	ALK	Count	6	6	5	1
2004-2011	CA	Mean	19	7	6	6
2012	CA	Mean	24	9	7	6
2004-2011	CA	Variance	59	3	3	2
2012	CA	Variance	57	5	1	NA
2004-2011	CA	25th Percentile	13	5	4	5
2012	CA	25th Percentile	22	7	6	6
2004-2011	CA	Median	18	6	5	5
2012	CA	Median	23	9	7	6
2004-2011	CA	75th Percentile	24	8	6	7
2012	CA	75th Percentile	24	10	8	6
2004-2011	CA	Count	66	74	81	36
2012	CA	Count	6	6	5	1
2004-2011	CL	Mean	40	23	22	23
2012	CL	Mean	65	29	33	28
2004-2011	CL	Variance	405	63	68	54
2012	CL	Variance	932	82	96	39
2004-2011	CL	25th Percentile	26	18	17	18
2012	CL	25th Percentile	49	24	27	24
2004-2011	CL	Median	39	22	22	23
2012	CL	Median	67	31	31	30
2004-2011	CL	75th Percentile	49	27	27	28
2012	CL	75th Percentile	72	35	39	31
2004-2011	CL	Count	81	85	88	64
2012	CL	Count	7	7	7	5

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2011	DCS	Mean	0.46	0.44	0.45	0.33
2012	DCS	Mean	NA	NA	NA	NA
2004-2011	DCS	Variance	0.02	0.02	0.02	0.01
2012	DCS	Variance	NA	NA	NA	NA
2004-2011	DCS	25th Percentile	0.35	0.36	0.36	0.27
2012	DCS	25th Percentile	NA	NA	NA	NA
2004-2011	DCS	Median	0.46	0.43	0.44	0.31
2012	DCS	Median	NA	NA	NA	NA
2004-2011	DCS	75th Percentile	0.58	0.51	0.50	0.37
2012	DCS	75th Percentile	NA	NA	NA	NA
2004-2011	DCS	Count	74	77	78	62
2012	DCS	Count	0	0	0	0
2004-2011	NA	Mean	27	13	13	13
2012	NA	Mean	42	16	16	13
2004-2011	NA	Variance	164	13	16	14
2012	NA	Variance	272	18	14	NA
2004-2011	NA	25th Percentile	18	10	10	10
2012	NA	25th Percentile	38	12	14	13
2004-2011	NA	Median	26	13	13	13
2012	NA	Median	39	17	18	13
2004-2011	NA	75th Percentile	34	16	15	16
2012	NA	75th Percentile	42	19	18	13
2004-2011	NA	Count	67	73	80	36
2012	NA	Count	6	6	5	1
2004-2011	SIO2	Mean	8	5	4	4
2012	SIO2	Mean	7	4	3	3
2004-2011	SIO2	Variance	34	6	3	4
2012	SIO2	Variance	7	1	4	NA
2004-2011	SIO2	25th Percentile	1	4	3	2
2012	SIO2	25th Percentile	6	4	2	3
2004-2011	SIO2	Median	7	5	4	4
2012	SIO2	Median	6	4	3	3
2004-2011	SIO2	75th Percentile	12	6	5	5
2012	SIO2	75th Percentile	6	5	3	3
2004-2011	SIO2	Count	66	73	80	36
2012	SIO2	Count	6	6	5	1

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2011	SO4	Mean	4.2	0.1	0.1	0.1
2012	SO4	Mean	3.5	0.1	0.1	0.1
2004-2011	SO4	Variance	107.6	0.0	0.0	0.0
2012	SO4	Variance	15.1	0.0	0.0	0.0
2004-2011	SO4	25th Percentile	0.5	0.1	0.1	0.1
2012	SO4	25th Percentile	1.6	0.1	0.1	0.1
2004-2011	SO4	Median	1.2	0.1	0.1	0.1
2012	SO4	Median	2.4	0.1	0.1	0.1
2004-2011	SO4	75th Percentile	3.7	0.2	0.1	0.1
2012	SO4	75th Percentile	3.0	0.1	0.1	0.1
2004-2011	SO4	Count	80	85	89	64
2012	SO4	Count	7	7	7	5
2004-2011	TDEPTH	Mean	0.35	0.30	0.32	0.21
2012	TDEPTH	Mean	0.37	0.31	0.37	0.19
2004-2011	TDEPTH	Variance	0.02	0.01	0.01	0.01
2012	TDEPTH	Variance	NA	NA	NA	NA
2004-2011	TDEPTH	25th Percentile	0.21	0.21	0.25	0.14
2012	TDEPTH	25th Percentile	0.37	0.31	0.37	0.19
2004-2011	TDEPTH	Median	0.34	0.31	0.33	0.19
2012	TDEPTH	Median	0.37	0.31	0.37	0.19
2004-2011	TDEPTH	75th Percentile	0.46	0.39	0.40	0.25
2012	TDEPTH	75th Percentile	0.37	0.31	0.37	0.19
2004-2011	TDEPTH	Count	85	92	93	73
2012	TDEPTH	Count	1	1	1	1
2004-2011	TDOC	Mean	19	22	22	19
2012	TDOC	Mean	26	31	27	21
2004-2011	TDOC	Variance	25	19	23	16
2012	TDOC	Variance	5	57	39	NA
2004-2011	TDOC	25th Percentile	16	19	19	16
2012	TDOC	25th Percentile	26	24	24	21
2004-2011	TDOC	Median	18	22	21	19
2012	TDOC	Median	26	32	27	21
2004-2011	TDOC	75th Percentile	22	24	24	21
2012	TDOC	75th Percentile	28	37	32	21
2004-2011	TDOC	Count	67	73	81	36
2012	TDOC	Count	6	6	5	1

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2011	TDS	Mean	189	105	101	98
2012	TDS	Mean	258	134	119	106
2004-2011	TDS	Variance	5508	1241	1347	1552
2012	TDS	Variance	7442	2753	1329	NA
2004-2011	TDS	25th Percentile	142	78	82	75
2012	TDS	25th Percentile	236	101	96	106
2004-2011	TDS	Median	174	100	101	97
2012	TDS	Median	260	130	118	106
2004-2011	TDS	75th Percentile	227	129	125	125
2012	TDS	75th Percentile	282	173	138	106
2004-2011	TDS	Count	67	72	79	34
2012	TDS	Count	6	6	5	1
2004-2011	TOC	Mean	18	22	21	17
2012	TOC	Mean	26	31	28	21
2004-2011	TOC	Variance	40	38	39	37
2012	TOC	Variance	5	54	43	NA
2004-2011	TOC	25th Percentile	15	20	19	16
2012	TOC	25th Percentile	26	25	24	21
2004-2011	TOC	Median	17	22	21	19
2012	TOC	Median	27	33	28	21
2004-2011	TOC	75th Percentile	22	25	25	21
2012	TOC	75th Percentile	28	37	32	21
2004-2011	TOC	Count	65	72	80	38
2012	TOC	Count	6	6	5	1
2004-2011	DO	Mean	3.8	4.8	4.7	4.5
2012	DO	Mean	3.8	4.1	4.4	3.2
2004-2011	DO	Variance	3.0	4.4	4.6	3.3
2012	DO	Variance	3.7	2.7	2.6	0.9
2004-2011	DO	25th Percentile	2.4	3.2	3.0	3.2
2012	DO	25th Percentile	2.4	3.2	3.3	2.3
2004-2011	DO	Median	3.8	4.9	4.8	4.4
2012	DO	Median	4.1	3.4	3.9	3.1
2004-2011	DO	75th Percentile	4.8	6.1	6.1	5.5
2012	DO	75th Percentile	5.3	4.9	4.8	3.8
2004-2011	DO	Count	82	84	86	62
2012	DO	Count	6	7	7	5

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2011	OPO4	Mean	3	3	3	3
2012	OPO4	Mean	1	1	1	1
2004-2011	OPO4	Variance	1	4	3	3
2012	OPO4	Variance	0	0	0	NA
2004-2011	OPO4	25th Percentile	1	1	1	1
2012	OPO4	25th Percentile	1	1	1	1
2004-2011	OPO4	Median	3	3	3	2
2012	OPO4	Median	1	1	1	1
2004-2011	OPO4	75th Percentile	3	3	3	3
2012	OPO4	75th Percentile	1	1	1	1
2004-2011	OPO4	Count	64	73	78	33
2012	OPO4	Count	6	6	5	1
2004-2011	PH	Mean	6.9	6.4	6.3	6.4
2012	PH	Mean	7.1	6.1	6.0	6.1
2004-2011	PH	Variance	0.1	0.2	0.2	0.1
2012	PH	Variance	0.1	0.1	0.2	0.5
2004-2011	PH	25th Percentile	6.6	6.1	6.0	6.2
2012	PH	25th Percentile	6.9	5.9	5.9	5.8
2004-2011	PH	Median	6.9	6.3	6.2	6.3
2012	PH	Median	7.1	6.2	6.0	6.1
2004-2011	PH	75th Percentile	7.1	6.5	6.4	6.5
2012	PH	75th Percentile	7.3	6.3	6.3	6.3
2004-2011	PH	Count	83	88	90	66
2012	PH	Count	6	6	6	4
2004-2011	SPCOND	Mean	262	126	118	122
2012	SPCOND	Mean	317	141	139	141
2004-2011	SPCOND	Variance	11944	1420	1621	966
2012	SPCOND	Variance	8839	1646	1902	458
2004-2011	SPCOND	25th Percentile	192	97	92	101
2012	SPCOND	25th Percentile	273	111	103	136
2004-2011	SPCOND	Median	247	123	110	120
2012	SPCOND	Median	366	150	136	138
2004-2011	SPCOND	75th Percentile	294	144	141	138
2012	SPCOND	75th Percentile	376	160	165	143
2004-2011	SPCOND	Count	77	84	85	63
2012	SPCOND	Count	7	6	6	5

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2011	TDP	Mean	4	5	5	4
2012	TDP	Mean	3	3	4	4
2004-2011	TDP	Variance	3	5	2	2
2012	TDP	Variance	0	1	0	NA
2004-2011	TDP	25th Percentile	3	4	4	3
2012	TDP	25th Percentile	3	2	3	4
2004-2011	TDP	Median	4	5	5	4
2012	TDP	Median	3	4	4	4
2004-2011	TDP	75th Percentile	5	6	6	5
2012	TDP	75th Percentile	3	4	4	4
2004-2011	TDP	Count	63	72	79	35
2012	TDP	Count	6	6	5	1
2004-2011	TEMP	Mean	23	24	24	24
2012	TEMP	Mean	22	23	23	22
2004-2011	TEMP	Variance	23	24	23	27
2012	TEMP	Variance	35	39	44	60
2004-2011	TEMP	25th Percentile	19	20	20	20
2012	TEMP	25th Percentile	20	20	20	21
2004-2011	TEMP	Median	23	24	24	24
2012	TEMP	Median	24	25	25	26
2004-2011	TEMP	75th Percentile	27	28	28	28
2012	TEMP	75th Percentile	26	28	27	27
2004-2011	TEMP	Count	84	91	93	68
2012	TEMP	Count	7	7	7	5
2004-2011	TN	Mean	1.3	1.3	1.4	1.3
2012	TN	Mean	1.5	1.7	1.6	1.7
2004-2011	TN	Variance	0.4	0.1	0.2	0.2
2012	TN	Variance	0.0	0.2	0.1	NA
2004-2011	TN	25th Percentile	1.0	1.2	1.2	1.1
2012	TN	25th Percentile	1.4	1.3	1.4	1.7
2004-2011	TN	Median	1.1	1.2	1.3	1.2
2012	TN	Median	1.5	1.7	1.5	1.7
2004-2011	TN	75th Percentile	1.3	1.4	1.6	1.4
2012	TN	75th Percentile	1.5	2.0	1.7	1.7
2004-2011	TN	Count	52	60	66	27
2012	TN	Count	5	5	4	1

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2011	TP	Mean	7	9	11	7
2012	TP	Mean	5	8	9	7
2004-2011	TP	Variance	13	14	45	8
2012	TP	Variance	0	3	4	8
2004-2011	TP	25th Percentile	5	7	8	6
2012	TP	25th Percentile	5	7	8	6
2004-2011	TP	Median	6	8	9	7
2012	TP	Median	5	8	10	9
2004-2011	TP	75th Percentile	7	9	11	8
2012	TP	75th Percentile	5	9	10	9
2004-2011	TP	Count	82	87	90	67
2012	TP	Count	7	7	7	5
2004-2011	TSS	Mean	1.8	2.0	2.0	2.0
2012	TSS	Mean	193.3	111.9	91.5	106.0
2004-2011	TSS	Variance	0.5	6.4	4.5	1.8
2012	TSS	Variance	12189.8	5678.0	3745.3	NA
2004-2011	TSS	25th Percentile	1.5	1.5	1.5	1.5
2012	TSS	25th Percentile	148.5	71.0	74.0	106.0
2004-2011	TSS	Median	1.6	1.6	1.6	1.6
2012	TSS	Median	243.0	110.0	96.0	106.0
2004-2011	TSS	75th Percentile	1.6	1.6	1.6	1.6
2012	TSS	75th Percentile	261.0	171.5	118.0	106.0
2004-2011	TSS	Count	67	74	80	36
2012	TSS	Count	6	6	5	1
2004-2011	DEPTH	Mean	0.18	0.16	0.17	0.12
2012	DEPTH	Mean	0.28	0.25	0.27	0.14
2004-2011	DEPTH	Variance	0.01	0.00	0.01	0.00
2012	DEPTH	Variance	0.01	0.01	0.01	0.00
2004-2011	DEPTH	25th Percentile	0.12	0.11	0.12	0.08
2012	DEPTH	25th Percentile	0.23	0.20	0.20	0.10
2004-2011	DEPTH	Median	0.17	0.16	0.17	0.11
2012	DEPTH	Median	0.27	0.24	0.27	0.14
2004-2011	DEPTH	75th Percentile	0.24	0.20	0.20	0.14
2012	DEPTH	75th Percentile	0.33	0.30	0.31	0.17
2004-2011	DEPTH	Count	82.0	89.0	94.0	70.0
2012	DEPTH	Count	7.0	7.0	7.0	7.0

APPENDIX B

Table A-2. EVPA and LOXA stations classified into zones for analyses.

Canal	LOXA104, LOXA115, LOXA129, LOXA132, LOXA135
Perimeter (<2.5 km; <1.6 miles)	LOX4, LOX6, LOX10, LOX14, LOX15, LOX16, LOXA101, LOXA102, LOXA103, LOXA105, LOXA106, LOXA107, LOXA109, LOXA112, LOXA116, LOXA117, LOXA118, LOXA122, LOXA124, LOXA126, LOXA130, LOXA131, LOXA133, LOXA134, LOXA136, LOXA137, LOXA138, LOXA140
Transition (2.5 - 4.5 km; 1.6 - 2.8 miles)	LOX12, LOXA108, LOXA110, LOXA111, LOXA113, LOXA114, LOXA119, LOXA127, LOXA139
Interior(>4.5 km;> 2.8 miles)	LOX3, LOX5, LOX7, LOX8, LOX9, LOX11, LOX13, LOXA120, LOXA128